Lockformer Work Plan

The Lockformer Company
711 W. Ogden Avenue
Lisle, Illinois 60532

Volume I: Text, Figures, & Tables

Clayton Project No. 15-65263.01-007
December 13, 2001

Prepared for:
THE LOCKFORMER COMPANY
Lisle, Illinois

Prepared by:
CLAYTON GROUP SERVICES, INC.
3140 Finley Road
Downers Grove, Illinois 60515
630.795.3200

Clayton GROUP SERVICES

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1.0 BACKGROUND

1.1 INTRODUCTION

The nature and content of this Lockformer Work Plan (LWP) has been discussed by the United States Environmental Protection Agency (USEPA), the Illinois Environmental Protection Agency (IEPA), the Illinois Attorney General (IAG), Lockformer, and their representatives on several occasions prior to the production of this document (meetings and conferences held on October 19, October 26, November 14 and November 16, 2001). In addition, this LWP has been prepared considering comments issued by the USEPA, the IEPA, the IAG, and their representatives on October 4, 2001 to Clayton Group Services, Inc. (Clayton) that were prepared as a result of the original LWP that was submitted on August 24, 2001.

In the meeting that took place on November 16, 2001 between the USEPA, the IEPA, the IAG, Lockformer and their representatives, the following decisions were made with respect to the contents of this LWP and the further work to be conducted at the Lockformer site:

1. The Lockformer site will be divided into three working areas. Area 1 will encompass the entirety of the Lockformer parcel of property. Area 2 will encompass the northern portion of the MetCoil property, and Area 3 will consist of the southern portion of the MetCoil property.
2. The LWP would address the remediation of contamination in Areas 1, 2 and 3.
3. Additional investigation and remediation efforts in Area 3 will be necessary. Additional investigation efforts for Area 3 will be presented in the LWP.
4. Remediation of the soil contamination in Area 3 will be designed and performed after completion of the soil and groundwater investigations efforts are completed.
5. Lockformer will commit to performing a groundwater remediation at the site upon completing the soil and groundwater investigations in Area 3.

The remainder of this LWP will describe the investigations and methodologies that will be utilized to accomplish the investigation and remediation objectives for the site.

1.2 OBJECTIVE

The objectives of this LWP are as follows:

1. To present the methods by which soils will be remediated in Areas 1 and 2. These soils consist of cohesive, fine-grained soils, till and fill occurring to a depth of approximately 30 feet, and coarse-grained, unconsolidated soils occurring from approximately 30 feet to 45 feet in depth.

2. To present the additional soil investigations efforts necessary to characterize any contamination occurring in surface drainage on and in the vicinity of the Lockformer site.

3. To present the additional soil investigation efforts necessary to define any contamination occurring in the vicinity of the northeast loading dock at the Lockformer facility.

4. To collect the additional soil and groundwater data necessary to characterize the extent of contamination occurring in Area 3, and in preparation for designing and implementing a groundwater remediation system for the site.

1.3 SITE DESCRIPTION

The site is located in south-central DuPage County, Illinois (Figure 1.3-1). The site consists of an east and west parcel that encompasses a total of 18.5 acres (Figure 1.3-2). The east parcel that has commonly been referred to as the Lockformer parcel is identified as Area 1. Area 1 consists of approximately 6.54 acres and is occupied by a single structure with associated landscaped and drive/parking areas. The structure is utilized by Lockformer as a manufacturing facility for production of sheet metal processing equipment and roll forming machines. The west parcel that has commonly been referred to as the MetCoil parcel has been divided into two separate areas. The northern portion of the MetCoil property will be referred to as Area 2, and the southern portion will be

referred to as Area 3. The west parcel consists of approximately 11.96 acres of undeveloped land. The site is located in a mixed area of industrial, commercial, and residential use, approximately 1,300 to 1,800 feet west of Interstate 355.

The site is bounded to the north by Ogden Avenue, beyond which exists a residential subdivision; to the east by the Bill Kay car dealership; to the south by a surface water retention basin servicing the Bill Kay property (beyond which exists single-family homes) and the Burlington Northern railroad (beyond which exists St. Joseph's Creek and residential homes); and to the west by a multi-unit commercial building.

Soil impacted by trichloroethene (TCE) was first discovered in the fall of 1991 during underground utility (water line) repair work conducted along the west side of the Lockformer manufacturing building. The TCE impacts to soil and groundwater in Areas 1 and 2 are believed to have been the result of filling operations of the roof-mounted TCE tank formerly located along the west side of the manufacturing building. The location of the this tank can be reviewed in Figure 1.3-2. The tank was equipped with metal fill and vent pipes that extended down the west building wall to approximately 4 feet above grade.

1.3.1 Topography

Clayton obtained and reviewed a topographical survey for the vicinity of the site from DuPage County. The topographical information for the site is illustrated in Figure 1.3-3. In general, the site's west parcel is higher in elevation than the east parcel. However, both parcels slope to the south/southwest. The eastern portion of the east parcel slopes east. A low-lying (ditch) right-of-way is located at the western edge of the east parcel and the eastern edge of the west parcel. Elevations on the east parcel range from approximately 714 feet above mean sea level (msl) adjacent to Ogden Avenue to approximately 700 feet above msl at the most southwestern portion of the parcel.

Elevations on the west parcel range from approximately 714 feet above msl adjacent to Ogden Avenue to approximately 684 feet above msl at the southern portion of the parcel.

A drainage swale runs north to south between Areas 1 and 2, and along the east side of Area 3. Prior to approximately 1983, this drainage swale contained a headwall at approximately the boundary between Areas 2 and 3 where storm water collected from Area 1 was discharged to the swale. The swale then ran to the south along the east side of Area 3 to ultimately discharge into an east-west drainage feature at the very south end of Area 3, immediately north of the railroad tracks. In approximately 1983, the headwall in this drainage swale was taken out of service and a new storm sewer line was installed east of the drainage swale in the West Avenue right-of-way. This storm sewer line runs to the south, down the West Avenue right-of-way to an east-west storm sewer line that crosses the south end of Area 3. At approximately the time that the headwall was removed, a retention basin was installed on the south end of MetCoil property in Area 3 to collect surface water runoff from the MetCoil property.

1.3.2 Geology

The site is located within the Wheaton Morainal section of the Great Lakes physiographic province. Based on the Illinois State Geological Survey (ISGS) Circular 460 *Summary of the Geology of the Chicago Area - 1971*, the uppermost surficial glacial unit present at the site consists of undifferentiated Valparaiso Moraine deposits. The Valparaiso Moraine includes a buried drift of questionable age, informally called the Lemont Drift, which consists of yellow-gray silty till, sand and gravel, and dune sand. The deposits are generally overlain by a thin Richland Loess or modern soil *(Illinois State Water Survey/Ground Water Resources of DuPage County, Illinois - Cooperative Ground Water Report 2 - 1962)*.

Based on the ISGS Circular 460 and Circular 532 *Potential for Contamination of Shallow Aquifers in Illinois-1984*, the Mackinaw Member of the Henry Formation is depicted as being deposited along the course of St. Joseph Creek throughout the area in the vicinity of the Lockformer site. The Mackinaw Member consists of unconsolidated, well sorted sand and gravel and appears to be deposited as a valley train associated with St. Joseph Creek. The thickness of the alluvium is variable and may directly overlie the Silurian Age dolomitic bedrock.

The Paleozoic bedrock underlying the glacial deposits consists of about 3,500 feet of consolidated, stratified, sedimentary rocks of Cambrian, Ordovician, and Silurian ages. The formations dip gradually to the east and southeast at about 10 feet per mile and are folded into a series of gentle anticlines and synclines. The glacial deposits at the subject property rest upon a synclinal fold of Silurian-aged bedrock of the Niagaran Series. The Niagaran rocks range from clean dolomite to highly silty, argillaceous, and cherty dolomite with some thin shale beds and may contain reefs locally *(Illinois State Water Survey / Ground Water Resources of DuPage County, Illinois - Cooperative Ground Water Report 2 - 1962)*.

Since beginning investigative activities in 1992, a series of subsurface investigations have been conducted at the site to evaluate the extent of Volatile Organic Compound (VOC) contamination. The investigations have included the advancement of approximately 187 soil borings to facilitate the collection of discrete soil samples, and the installation of 78 monitoring wells to facilitate the collection of groundwater samples for chemical analysis. A large number of these soil borings and groundwater monitoring wells have been installed in Areas 1 and 2 to define the geology and the extent of contamination there.

Based on subsurface investigations conducted in Areas 1 and 2, the lithologies underlying the vicinity of the former TCE fill pipe consist of cohesive, silty clay glacial till and fill

from surface grade to a depth of approximately 25 to 30 feet (elevation of approximately 675 to 680 feet above msl). The silty clay is underlain by a mass waste deposit predominantly composed of unconsolidated, sand and gravel that contains variable amounts of silt and clay. It is readily distinguished by its high percentage of angular gravel clasts composed of dolomite. It is typically very poorly sorted, and grades to a sand and silt toward the base of the deposit at some locations.

A cohesive, clayey silt comprises the lower glacial till that underlies the mass waste deposit at an elevation of approximately 662 feet msl in the vicinity of the TCE fill pipe. The lower clayey silt till extends down to an approximate elevation of 643 to 650 feet msl, at which point it is underlain by a lower sand at some locations but extends to the weathered bedrock surface at most locations within Areas 1 and 2. The lower sand contains significant amounts of silt and clay.

In Areas 1 and 2 the upper weathered portion of the Silurian dolomite is encountered at an elevation of approximately 630 msl. The competent dolomitic bedrock surface typically occurs at approximately 620 to 625 feet msl.

A significant amount of topographic slope occurs from north to south on the MetCoil property and results in significantly lower surface grade elevations in Area 3. A retention basin has also been constructed in the south portion of Area 3. The net result of these topographic changes are that the surficial silty clay glacial till and fill gradually thins to the south to the point where the mass waste sand and gravel is exposed at surface grade within the retention basin. There also appears to be a transitional environment of deposition within the lower till unit. It appears that the lower till contains a higher percentage of sand where it was observed at monitoring well nest MW-1113. However, the lithologies still exhibited a cohesive nature and, therefore, are indicative of high percentages of silt and clay. At this time, no borings have extended to bedrock along the south property boundary. As a result, the existence of the lower till within or below the

mass waste sand and gravel, and above bedrock in this portion of the site is undetermined.

Cross sections have been prepared that illustrate the sequence of lithologies described above and their lateral variation across the site. Figure 1.3-4 is a cross-section reference map that shows the location of each cross section. Figure 1.3-5 presents cross-section A-A'. Figure 1.3-6 presents cross-section B-B'. Figure 1.3-7 presents cross-section C-C'.

Further details regarding the site geology are provided in Section 2 of this LWP. However, the timeframe under which this LWP was developed precluded the development of a discussion including interpretive detail regarding the site geology. Further interpretive detail will be provided in the Comprehensive VOC Investigation Report that will be submitted to the IEPA as a result of the work performed under the May 25, 2001 approved work plan by the IEPA.

1.3.3 Hydrogeology

Investigations in Areas 1 and 2 indicate that groundwater occurs variably within the upper surficial silty clay till and fill. At some locations, wells completed in the upper suficial silty clay till and fill will encounter groundwater that will yield to a well and allow sampling. At other locations, wells completed in the upper surficial silty clay till and fill are dry. The upper surficial silty clay till and fill in Areas 1 and 2 generally occurs from surface grade to approximately 25 to 30 feet in depth.

Groundwater occurring within the surficial silty clay till and fill does not appear to form a water table condition. Instead, it appears groundwater variably occurs within the surficial silty clay till and fill, and is controlled by the occurrence of fractures and coarse-grain lithologies contained within the lithologic sequence.

The glacial mass waste sand and gravel occurs below the surficial silty clay till and fill. This mass waste sand and gravel is predominantly unconsolidated and exhibits significantly increased permeabilities over those in the surficial silty clay till and fill. Some isolated portions of the mass waste unit across Areas 1 and 2 exhibit a loosely cohesive nature indicative of a greater percentage of fine-grained lithologies and lower permeabilities.

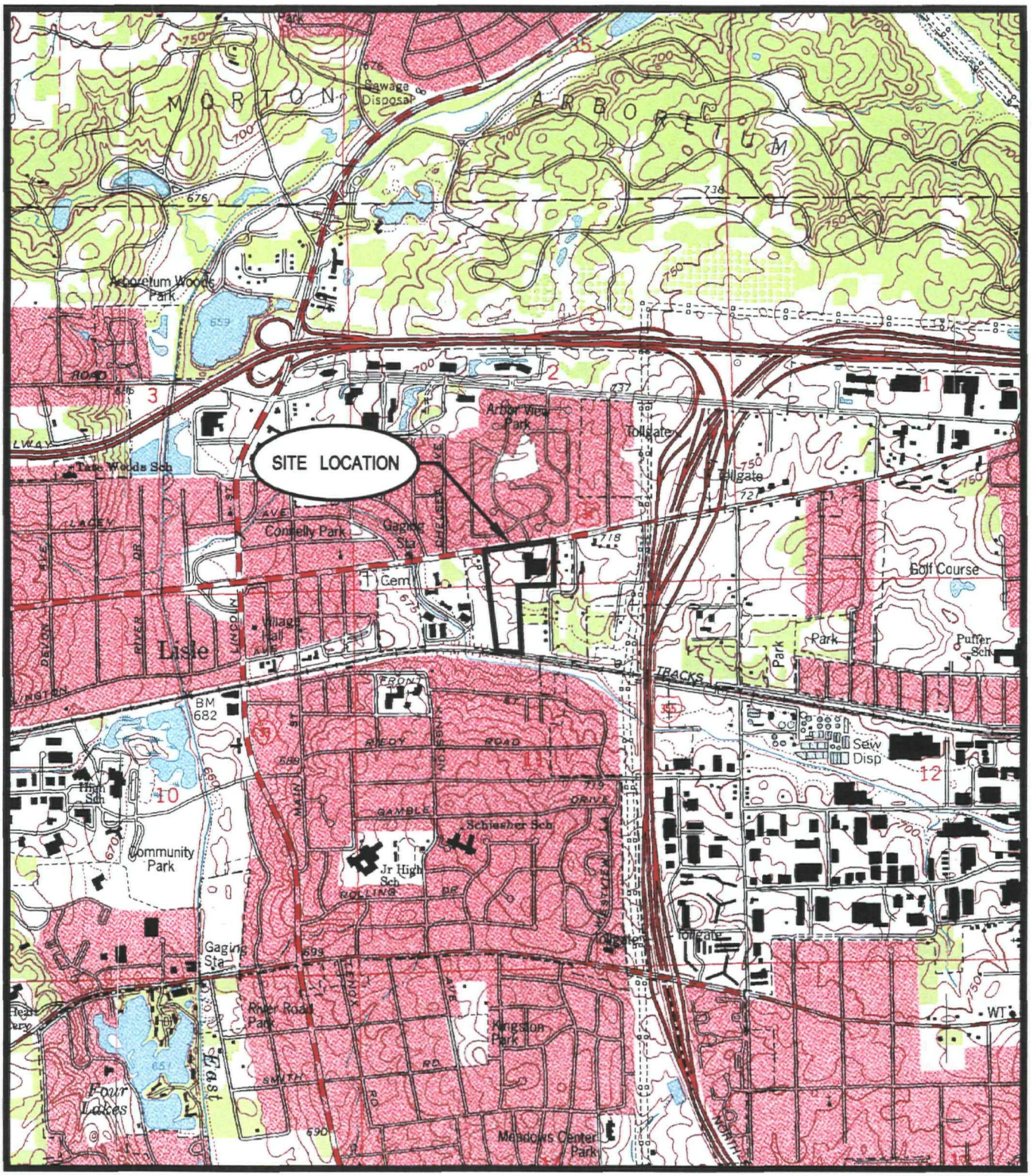
The investigations in Areas 1 and 2 indicate that the mass waste unit across these areas is positioned above a silty clay glacial till. This lower silty clay glacial till has been determined to be present below the mass waste sand and gravel over the entirety of Areas 1 and 2 in each boring drilled to its depth. The upper surface of the lower silty clay glacial till occurs at an approximate elevation of 662 feet msl in the vicinity of the TCE fill pipe. The upper surface of the lower silty clay glacial till slopes down in areas to the west and south away from the TCE fill pipe.

The mass waste sand and gravel is unsaturated in the vicinity of the TCE fill pipe where extensive soil contamination occurs. The contact between the upper surface of the lower silty clay glacial till and the mass waste sand and gravel, slopes down away from the area of the TCE fill pipe. When the upper surface of the lower silty clay till surface occurs below an elevation of approximately 655 feet msl, groundwater saturates the mass waste sand and gravel sediments to form a water table condition.

Recent investigations in Area 3 have indicated the presence of a transitional environment of deposition in the lower till below the mass waste sand and gravel. A limited thickness of saturated sediments occur in the coarse-grained sediments above the lower till in the vicinity of monitoring well nest MW-1113. At monitoring well nest MW-1113, a six-foot clay separates the three to four foot thick saturated zone in unconsolidated, saturated sediments from the lower till unit.

Further to the south in Area 3 along the southern boundary of the site, investigations have primarily been directed toward determining the extent of soil contamination related to releases from the Lisle sanitary sewer system. As a result, the depth of investigation has only extended down to the water table. The water table in this area occurs within the mass waste sand and gravel at a depth of approximately 26 feet.

FIGURES



Scale 1:24000

0 1/2 1 MILE

1000 0 1000 2000 3000 FEET

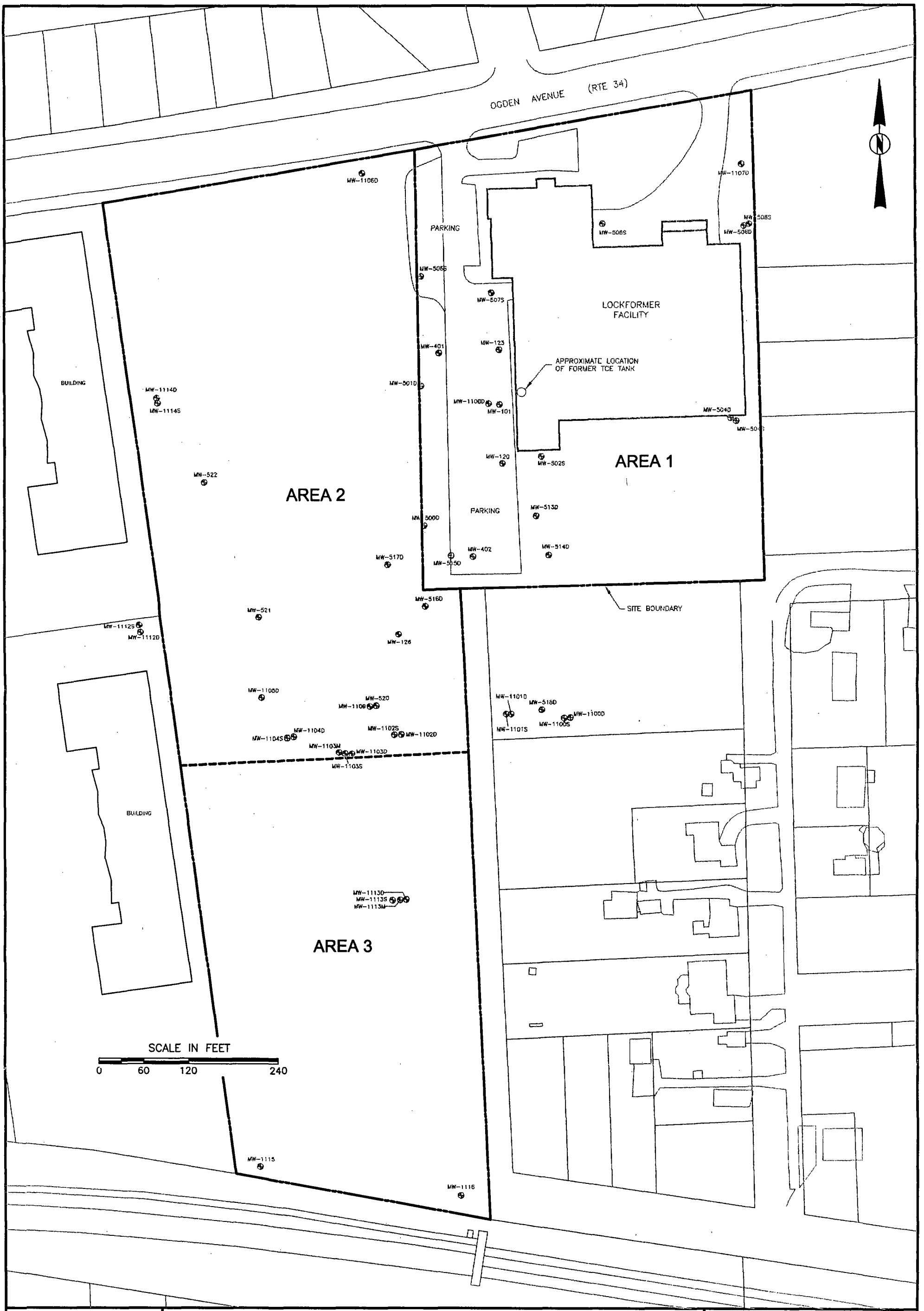
QUADRANGLE LOCATION

FIGURE 1.3-1

SITE LOCATION MAP

THE LOCKFORMER COMPANY
711 OGDEN AVENUE
LISLE, ILLINOIS

(SOURCE OF MAP IS USGS 7.5 MINUTE QUADRANGLE MAP, WHEATON, ILLINOIS)



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DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526307Y
PRJ NO.	65263.01

SITE MAP ILLUSTRATING AREAS 1, 2 AND 3

LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

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FIGURE 1.3-2

SITE TOPOGRAPHIC MAP
THE LOCKFORMER COMPANY / LISLE, ILLINOIS

N

Legend

Surface Contours (2 Foot Interval)

Parcel Boundaries

0 240 480 720 Feet

Note:

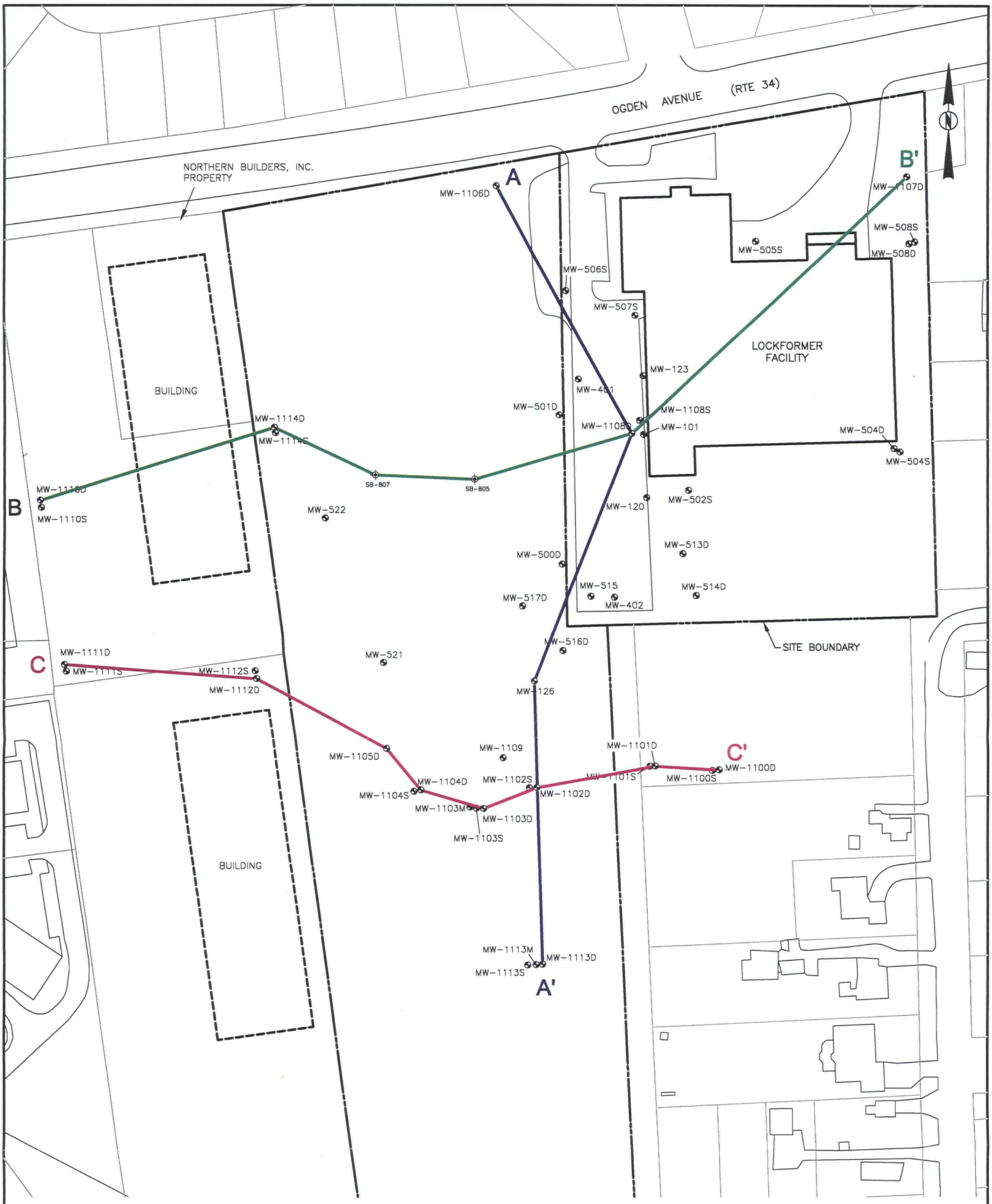
Aerial photograph, propertiy boundaries, and contour lines obtained from DuPage County Government.
Date of aerial photography: April 1998

Map is in Illinois State Plane, NAD 83, Feet

Project: 15-65263.01
Site_Topo_Map.MXD
Date: 12/07/01
Drawn by: SFS

Clayton GROUP SERVICES

FIGURE 1.3-3



LEGEND

EXISTING MONITORING WELL

SCALE IN FEET

0 60 120 240

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CAD NO.	6526307L
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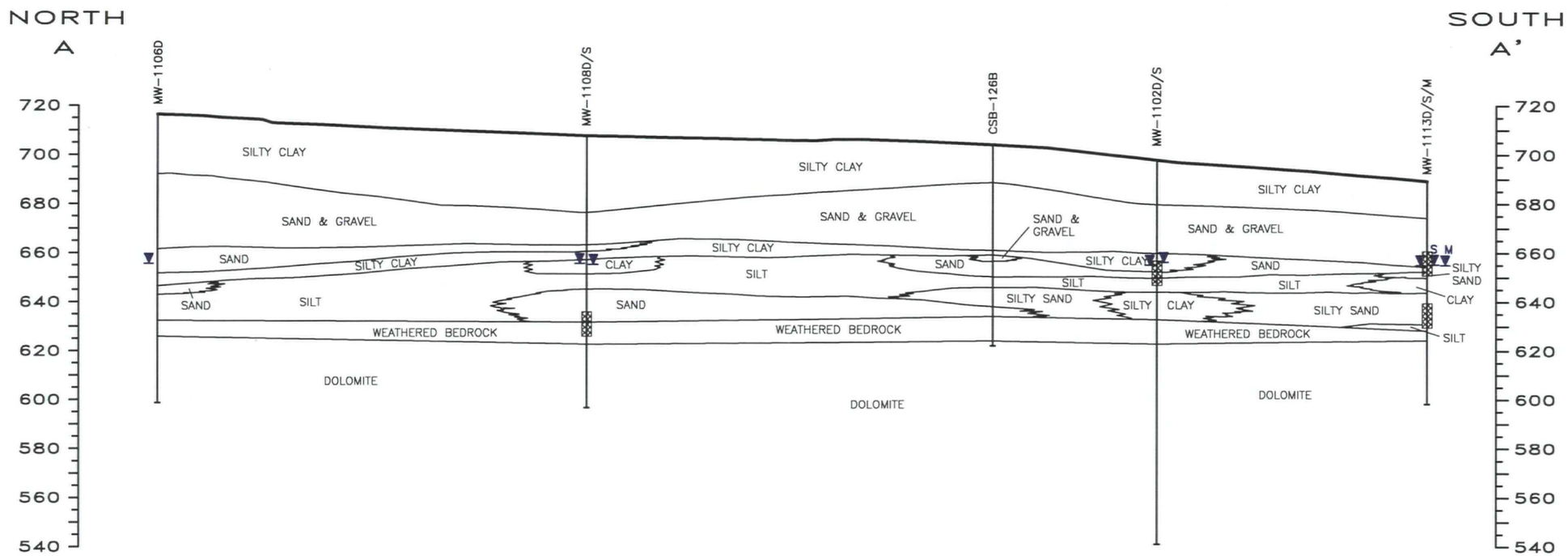
CROSS SECTION REFERENCE MAP

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES
3140 FINLEY ROAD, DOWNERS GROVE, IL 60515

FIGURE 1.3-4



LEGEND

▼ WATER LEVEL MEASURED ON OCTOBER 17, 2001
BEDROCK MEASUREMENT ON LEFT
GLACIAL DRIFT MEASUREMENT ON RIGHT

▩ SCREEN INTERVAL

HORIZONTAL
SCALE IN FEET
0 50 100 200

VERTICAL EXAGGERATION = 2X

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DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526307o
PRJ NO.	65263.01

CROSS SECTION A – A'

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

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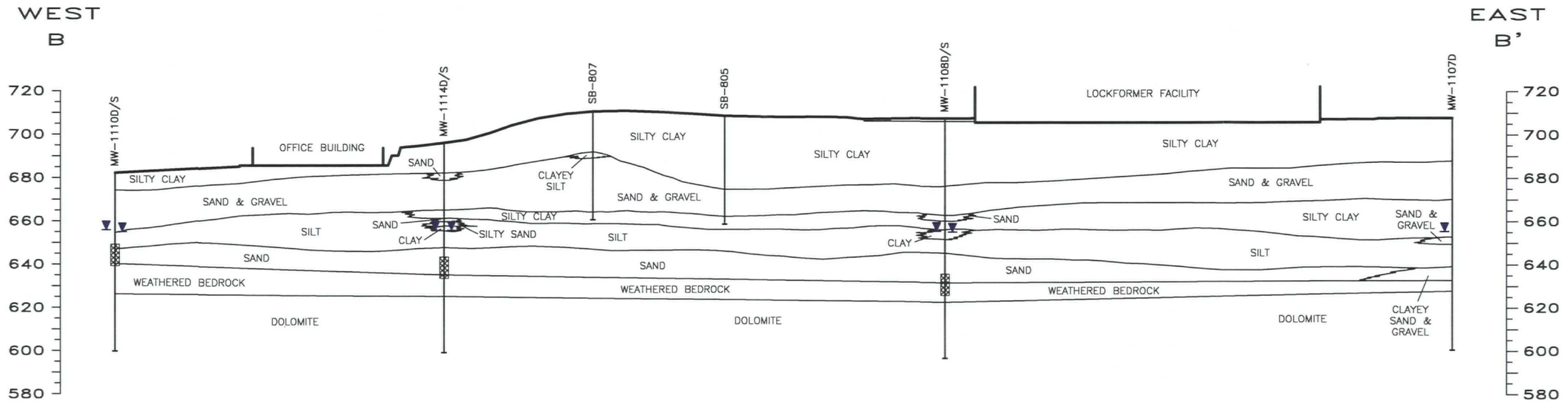
FIGURE
1.3-5



LEGEND

▼ WATER LEVEL MEASURED ON OCTOBER 17, 2001
BEDROCK MEASUREMENT ON LEFT
GLACIAL DRIFT MEASUREMENT ON RIGHT

SCREEN INTERVAL

HORIZONTAL
SCALE IN FEET
0 50 100 200

VERTICAL EXAGGERATION = 2X

CHECK BY	WSE
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DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526307M
PRJ NO.	65263.01

CROSS SECTION B – B'

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

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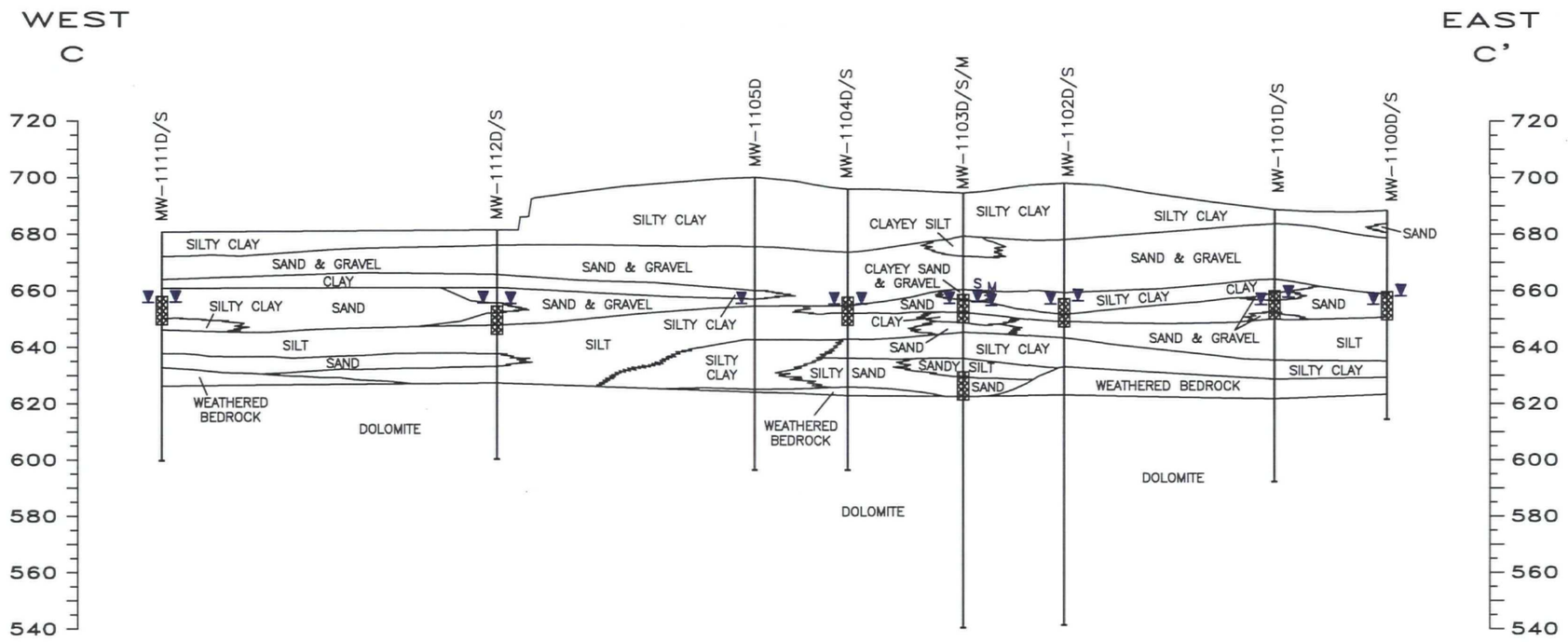
FIGURE
1.3-6



LEGEND

▼ WATER LEVEL MEASURED ON OCTOBER 17, 2001
BEDROCK MEASUREMENT ON LEFT
GLACIAL DRIFT MEASUREMENT ON RIGHT

SCREEN INTERVAL

HORIZONTAL
SCALE IN FEET
0 50 100 200

VERTICAL EXAGGERATION = 2X

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DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526307N
PRJ NO.	65263.01

CROSS SECTION C – C'

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
1.3-7

2.0 DATA SUMMARY

This section of the LWP summarizes the results of field investigations performed to date. Due to the time constraints involved in developing this LWP, it is not the intent of this data summary to provide an interpretation of the data. Instead, the data is primarily presented in a graphical and tabulated format and in an organized manner to help the reviewer gain better understanding of site conditions. In each instance, the figures provided contain a summary of all investigation data collected to date, including data previously reported in the Interim Investigation Report prepared by Clayton and dated January 25, 2001. Most of the tabulated data contained in this LWP contains only the data developed since the Clayton January 25, 2001 report. To aid in the review of this data summary, all the boring logs from drilling performed to date involving investigations of the Lockformer site are provided in numeric sequence in Appendix A.

2.1 AREA 1 AND AREA 2 DATA SUMMARY

This section of the LWP summarizes the results of the field investigations performed to date in Areas 1 and 2. The investigations in Areas 1 and 2 have primarily focused on the releases that resulted from the manufacturing processes associated with, and potentially impacting the area under and around the facility building; and releases associated with the TCE fill pipe.

2.1.1 Area 1 and 2 Soil Investigations

2.1.1.1 Soil Investigations Related to Manufacturing Processes at the Lockformer Facility

Soil Investigations related to the manufacturing processes at the Lockformer facility have primarily focused on the following areas within and directly around the facility building:

- The former TCE vapor degreaser.
- The sanitary and storm sewer lines and associated floor drains under the building floor.
- The south side door leading to the outside from the manufacturing operation.
- The basement area sump that collects water from the footing drains and the secondary containment sump for the petroleum tank.

The results of all investigations performed around the former TCE vapor degreaser; the sanitary and storm sewer lines and associated floor drains under the building floor; and the south side exterior door are illustrated in Figure 2.1-1. The result of Clayton investigations around the former TCE vapor degreaser; and the storm and sanitary sewer lines are tabulated in Table 2.1-1. The results of the soil borings around the south exterior door leading to the manufacturing operation are summarized in Table 2.1-2.

The results of the two investigation boring performed in the Lockformer basement area adjacent to the footing drain sump and the sump in the secondary containment for the petroleum tank are illustrated in Figure 2.1-2. The data from these borings in the basement is summarized in Table 2.1-1.

2.1.1.2 Soil and Sediment Sampling Related to the Exterior Utility Lines in Areas 1 and 2

The storm and sanitary sewer catch basins and manholes in Areas 1 and 2 were inspected as part of the investigative work associated with the IEPA work plan. Where sediment was present in these catch basins and manholes, it was submitted for laboratory analysis. Figure 2.1-3 illustrates the catch basins and manholes in Areas 1 and 2 that were inspected and sampled. The results of the sediment sample analyses are indicated. Table 2.1-3 summarizes the laboratory analytical results from sampling of these catch basins and manholes.

A series of trenches were previously excavated along the utility lines in Areas 1 and 2 to determine the nature of any contamination that might have been released from the sewer systems and/or migrating through any coarse-grained bedding material associated with the sewers or other utilities. The location of the excavations and results of samples taken from them to perform these investigations appear in Figure 2.1-3. The samples from these trenches were acquired as grab samples of the bedding material adjacent to the sewer pipe or utility line from a backhoe performing the excavation.

The storm and sanitary sewer catch basins and manholes at the Lockformer site including invert elevations have been surveyed and appear in Figure 2.1-4.

2.1.1.3 Soil Investigations Related to the TCE Fill Pipe Releases

Soil investigations related to releases at the TCE fill pipe have been extensive. Figures 2.1-5A through H illustrate the soil sampling results for specific depth intervals obtained during investigations to define the extent of the TCE fill pipe releases. The results from recent investigations involving the 1200-series borings installed in the immediate vicinity of the TCE fill pipe are provided in Table 2.1-4. The results of geotechnical analyses of samples acquired from the 1200-series borings in the immediate vicinity of the TCE fill pipe are provided in Table 2.1-5

Two cross sections in the immediate vicinity of the TCE fill pipe have been developed from the recently performed 1200-series borings. Figure 2.1-6 illustrates the locations for cross-sections SA-1 to SA-1' and SA-2 to SA-2'. Figures 2.1-7 and 2.1-8 illustrate the sequence of lithologies in the vicinity of the former TCE fill pipe along cross-sections SA-1 to SA-1' and SA-2 to SA-2'. Superimposed on cross-sections SA-1 to SA-1' and SA-2 to SA-2' are soil sampling results for TCE and cis-1,2-dichloroethene (DCE) and the potentiometric surface of the lower sand on November 30, 2001.

2.1.2 Areas 1 and 2 Groundwater Investigations

The most recent results of groundwater sampling from monitoring wells in Areas 1 and 2 are illustrated in Figure 2.1-9. All groundwater sample results appearing in Figure 2.1-9 were acquired in 2001. Sample results from monitoring wells completed in the glacial sediments during the Lockformer groundwater investigations and sampled since the January 25, 2001 Clayton report are tabulated and appear in Table 2.1-6. Sample results from the single packer tests performed during drilling of the bedrock wells during the Lockformer groundwater investigations are tabulated and appear in Table 2.1-7. Sample results from double packer test performed on the bedrock monitoring wells during the Lockformer groundwater investigations are tabulated and appear in Table 2.1-8. Water level measurements acquired from monitoring wells completed in the glacial sediments and bedrock appear in Table 2.1-9.

2.2 AREA 3 DATA SUMMARY

2.2.1 Area 3 Soil Investigations

The Area 3 soil investigations have primarily involved sampling along the drainage ways and the sanitary sewer system. Table 2.2-1 summarizes the data from these 1500-series soil borings performed in Area 3. Figure 2.2-1 summarizes the data collected in the 1500-series soil borings in Area 3.

2.2.2 Area 3 Groundwater Investigations

The Area 3 groundwater investigations have been primarily focused along the drainage ways and the sanitary sewer system. Table 2.2-2 provides a tabulated summary of laboratory analytical results for groundwater samples collected in Area 3. Figure 2.2-2

provides a summary of the groundwater sampling results from monitoring wells, and groundwater grab sample results from the 1500-series soil borings in Area 3.

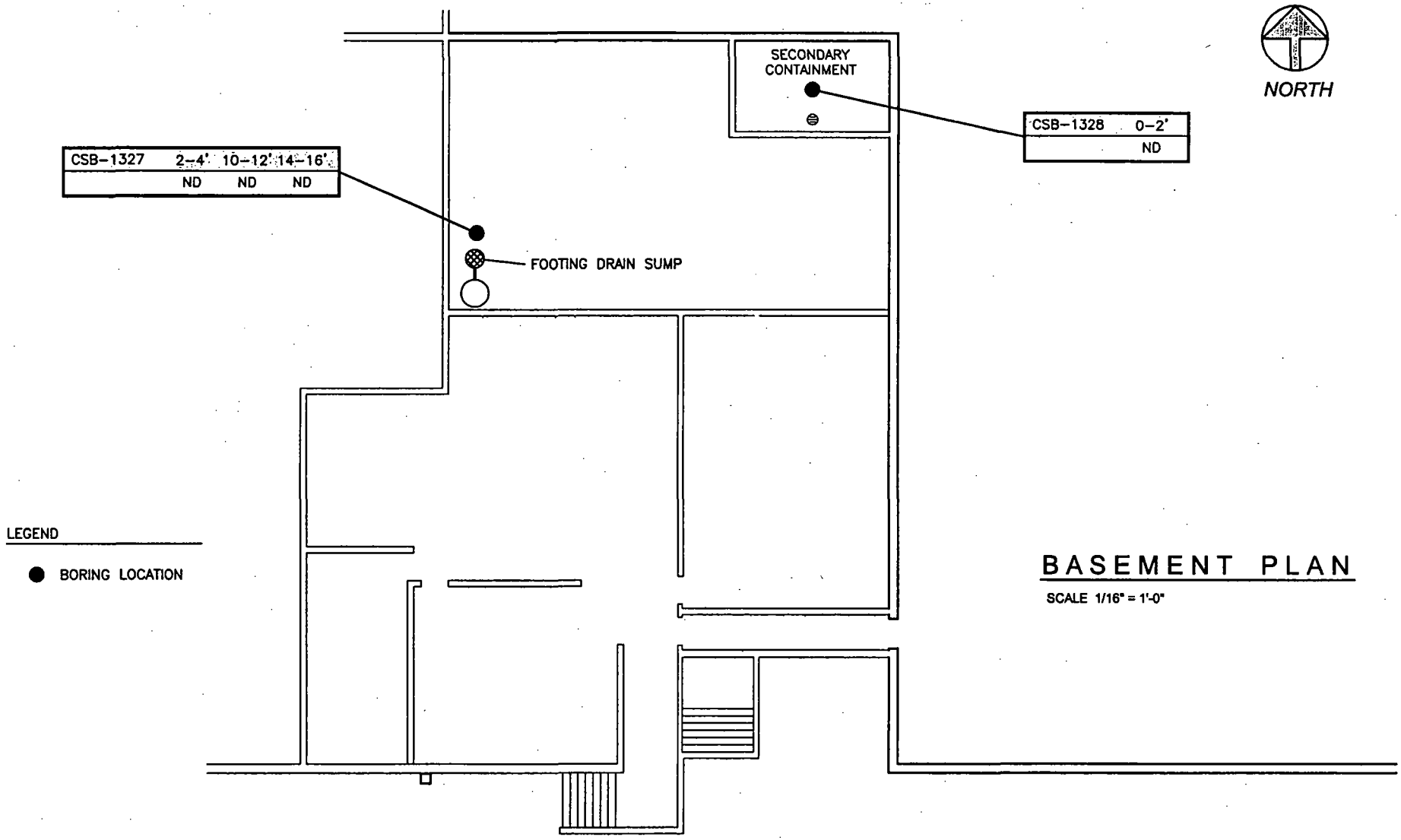
Sample results from the single packer tests performed during the drilling of the MW-1113D bedrock well are tabulated and appear in Table 2.1-7. Sample results from double packer tests performed on bedrock monitoring well MW-1113D appear in Table 2.1-8. Water level measurements acquired from monitoring wells completed in the glacial sediments and bedrock appear in Table 2.1-9.

2.3 SEMI-REGIONAL GROUNDWATER DATA SUMMARY

A variety of data was collected in order to determine the nature of groundwater flow in the semi-regional area around the Lockformer site. In order to make this determination, groundwater monitoring wells were installed in offsite locations along Front Street and Riedy Road in the residential area south of Lockformer. Groundwater monitoring wells were also installed in the Ellsworth Industrial District immediately east of Interstate 355. A series of staff gages were also established along the St. Joseph Creek and the East Branch of the DuPage River. Figure 2.3-1 summarizes the location of these semi-regional surface water and groundwater measurement points. Offsite groundwater monitoring well sampling results available at the time of issuance of this LWP are summarized in Figure 2.3-2.

Sample results from the single packer tests performed during the drilling of the offsite bedrock monitoring wells are tabulated and appear in Table 2.1-7. Sample results from double packer tests performed on the offsite bedrock monitoring wells appear in Table 2.1-8. Sample results for the offsite monitoring wells completed in the glacial sediments appear in Table 2.1-6. Water level measurements acquired from the offsite monitoring wells completed in the glacial sediments and bedrock appear in Table 2.1-9.

FIGURES



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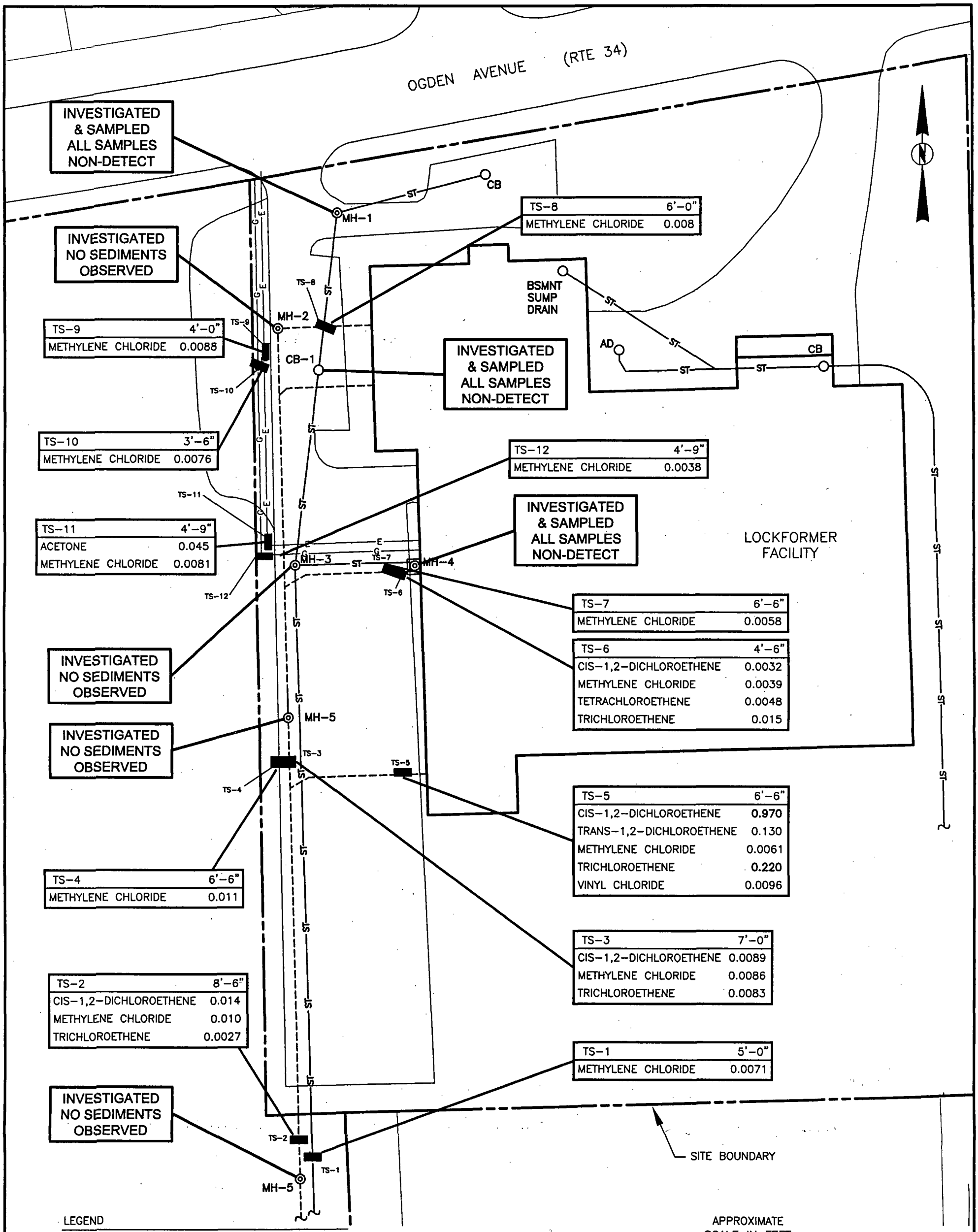
DWN BY	BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526303i
PRJ NO.	65263.01

BUILDING BASEMENT
SUMP SAMPLING RESULTS

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
2.1-2



NOTE:
FACILITY LAYOUT AND TRENCH LOCATIONS BASED ON CARLSON ENVIRONMENTAL, INC.'S TRENCH SAMPLE LOCATION MAP.

CHECK BY	
DRAWN BY	BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526302T
PRJ NO.	65263.01

STORM AND SANITARY SEWER SAMPLING
LOCATIONS AND RESULTS

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES
3140 FINLEY ROAD, DOWNERS GROVE, IL 60515

FIGURE 2.1-3

OGDEN AVENUE (RTE 34)

SB-800	4-6'
< TIER 1	

SB-801	2-4'
< TIER 1	

SB-605	2-4'
TCE	0.15

B-122	2.5-4.5'
< TIER 1	

B-606	0-2'
< TIER 1	

B-602	2-4'
< TIER 1	

SB-603	2-4'
TCE	1.9
PCE	0.22
CIS-1,2-DCE	0.77

B-601	2-4'
< TIER 1	

B-625	2-4'
< TIER 1	

B-806	4-6'
< TIER 1	

MW-1112S	0-2'	2-4'
	< TIER 1	< TIER 1

SB-623	4-6'
TCE	0.31

SB-600	0-2'
< TIER 1	

SB-608	4-6'
TCE	1.3
CIS-1,2-DCE	0.61

MW-120	4-4.5'
< TIER 1	

MW-520	4-6'
< TIER 1	

SB-700	0-2'
< TIER 1	

SB-702	4-6'
< TIER 1	

CSB-1206	2-4'
CIS-1,2-DCE	0.593
T-1,2-DCE	< TIER 1
1,1,1-TCA	< TIER 1

MW-1108S	2-4'
TCE	765
PCE	18
CIS-1,2-DCE	38.2

B-13	1-2'	2-3'	3-4'
TCE	680	310	110
PCE	2.2	9	2.5
1,1,1-TCA	5.5		

B-14	1-2'
TCE	120
PCE	1.7

B-15	3-4'
TCE	21
PCE	0.88

SB-701	2-4'
< TIER 1	

B-808	2-4'
< TIER 1	

LOCKFORMER FACILITY

SITE BOUNDARY

BUILDING

SB-800 SB-801 B-122 SB-606 SB-602 CSB-1206 MW-1108S B-13 B-14 B-15 SB-601 SB-603 SB-608 8.9 SB-625 SB-600 SB-623 MW-120 SB-808 SB-806 MW-1112S SB-700 SB-701 MW-520 SB-702

LEGEND

—8.9— APPROXIMATE EXTENT OF SOIL EXHIBITING TCE CONCENTRATIONS GREATER THAN TIER 1 TACO VALUES FOR INDUSTRIAL-COMMERCIAL INHALATION ROUTE OF EXPOSURE

- MONITORING WELL
- SOIL BORING COMPLETED BY CLAYTON (1200 SERIES)
- SOIL BORING COMPLETED BY STS (1992 & 1995)
- SOIL BORING COMPLETED BY CEI (8/98, 2/99 AND 12/00)
- SOIL BORING COMPLETED BY CEI (11/00)

NOTES:
1. ALL RESULTS SHOWN IN mg/kg.
2. TIER 1 = MOST CONSERVATIVE SOIL REMEDIATION OBJECTIVE ESTABLISHED IN TACO.

SCALE IN FEET
0 50 100 200

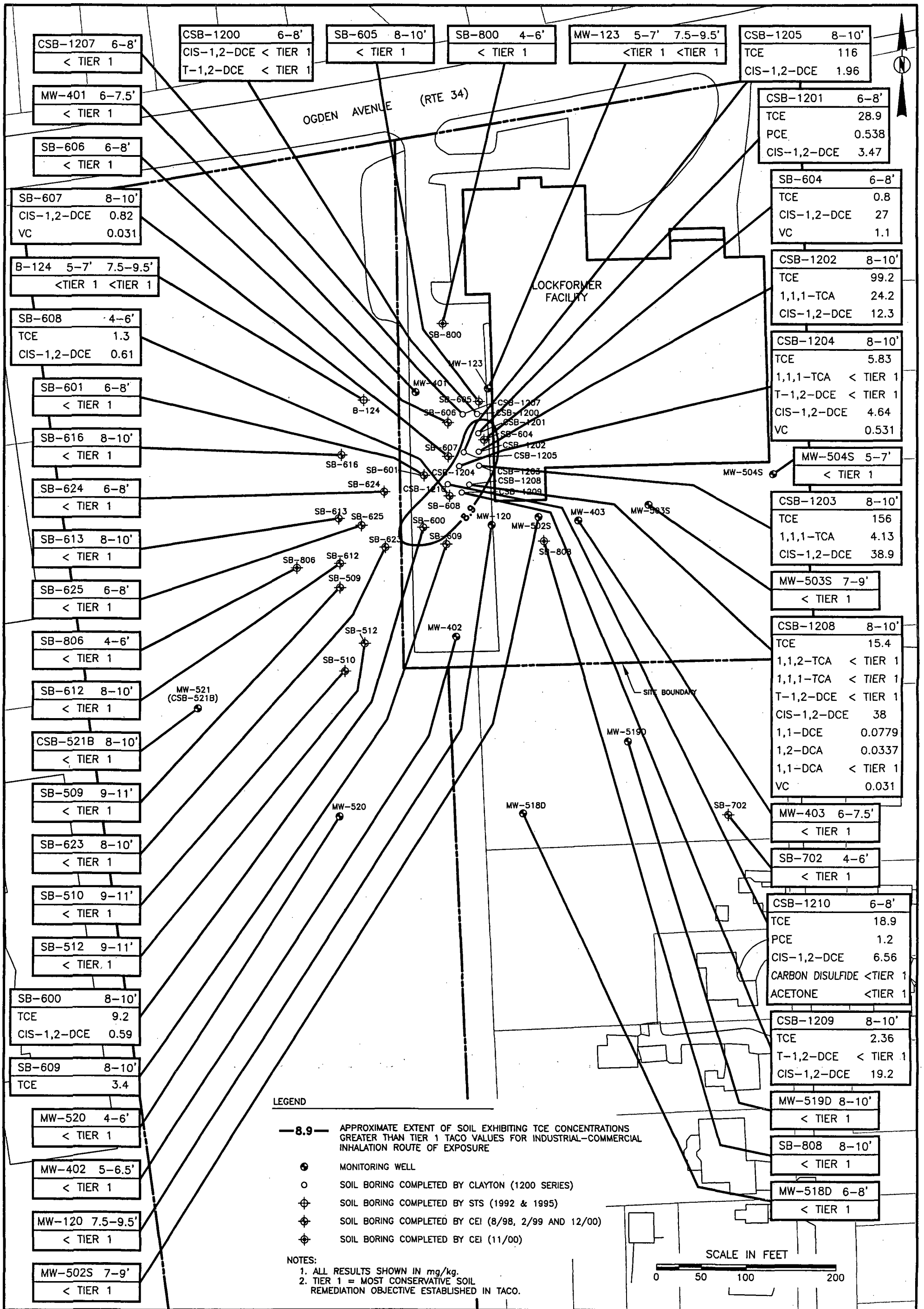
CHECK BY	
DRAWN BY	BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526307A1
PRJ NO.	65263.01

SOIL SAMPLES IN THE 0-5' DEPTH INTERVAL

LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE 2.1-5A



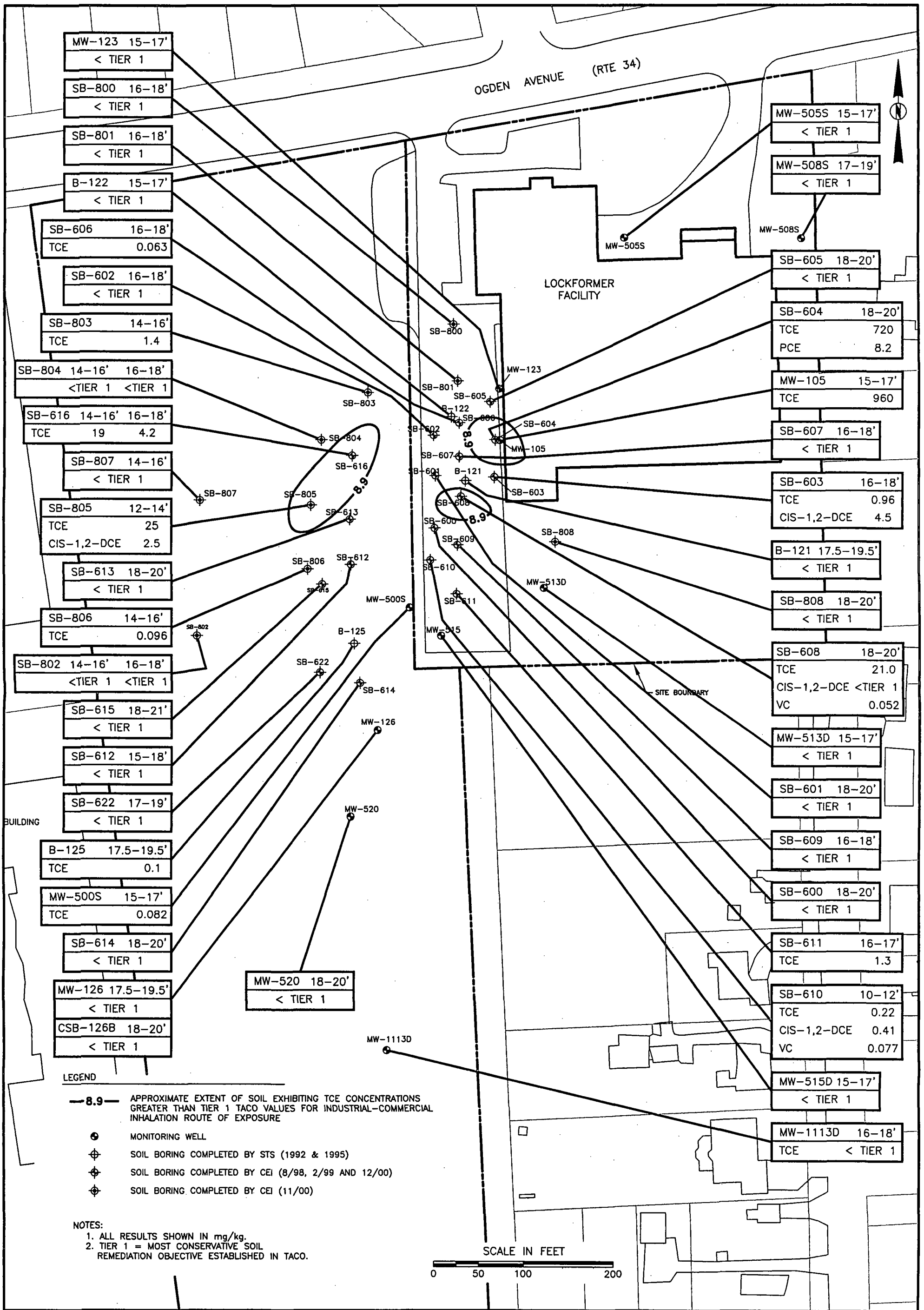
CHECK BY	
DRAWN BY	BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526307B1
PRJ NO.	65263.01

SOIL SAMPLES IN THE 5-10' DEPTH INTERVAL

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE 2.1-5B



CHECK BY	
DRAWN BY	BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526307D1
PRJ NO.	65263.01

SOIL SAMPLES IN THE 15-20' DEPTH INTERVAL

LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE 2.1-5D

SB-620 28-30' | < TIER 1

SB-621 28-30' | < TIER 1

MW-401 28.5-30' | TCE 0.14

B-122 20-22' 25-27' | <TIER 1 <TIER 1

SB-602 23-25' | < TIER 1

SB-607 24-26' | < TIER 1

SB-804 28-30' | < TIER 1

SB-805 22-24' 28-30' | <TIER 1 | TCE 1.0

MW-1114D

MW-1114D 28-30' | < TIER 1

SB-807

SB-807 28-30' | < TIER 1

SB-805

SB-613

MW-522

MW-522 28-30' | < TIER 1

SB-806

SB-612

SB-613 25-28' | < TIER 1

SB-802

SB-802 28-30' | < TIER 1

MW-521

MW-1112S

MW-1112S 22-24' | < TIER 1

CSB-521B 28-30' | < TIER 1

BUILDING

SB-806 28-30' | TCE 0.14

SB-612 28-30' | TCE 0.67

B-125 20-22' 25-27' | <TIER 1 <TIER 1

SB-614 22-24' | < TIER 1

SB-801 28-30' | < TIER 1

SB-605 26-28' | < TIER 1

MW-507S 23-25' | < TIER 1

OGDEN AVENUE (RTE 34)

LOCKFORMER FACILITY

MW-507S

SB-620

SB-801

MW-401 SB-621 SB-605 CSB-1207

B-122 SB-606 CSB-1206

CSB-1201

MW-1108S

SB-602 CSB-1205

MW-101

SB-607 CSB-1204 SB-601 CSB-1202

CSB-1203

SB-603

CSB-1208

CSB-1209

SB-600

SB-608

SB-610

SB-611

SB-515

SITE BOUNDARY

MW-516D

MW-126

MW-520

MW-126 20-22' 25-27' | <TIER 1 <TIER 1

MW-520 28-30' | < TIER 1

CSB-1207 22-24' | < TIER 1

SB-606 28-30' | < TIER 1

CSB-1206 22-24' | < TIER 1

CSB-1201 20-22' | TCE 65.4 | 1,1-DCA 0.081 | 1,1-DCE < TIER 1 | CIS-1,2-DCE < TIER 1 | T-1,2-DCE < TIER 1 | VC 0.0287

MW-1108S 20-22' 28-30' | TCE < TIER 1 0.0686 | CIS-1,2-DCE < TIER 1 < TIER 1

CSB-1205 20-22' | TCE 0.0725

MW-101 20-21.5' | TCE 0.093

CSB-1202 26-28' | < TIER 1

CSB-1203 22-24' | < TIER 1

SB-603 26-28' | < TIER 1

CSB-1204 26-28' | TCE < TIER 1

SB-808 28-30' | < TIER 1

CSB-1208 28-30' | TCE 0.582

CSB-1209 22-24' | < TIER 1

CSB-1210 24-26' | < TIER 1

SB-601 26-28' | < TIER 1

SB-600 24-26' | < TIER 1

SB-610 26-28' | TCE 2.0 | CIS-1,2-DCE 0.61

SB-611 26-28' | < TIER 1

MW-515D 25-27' | < TIER 1

MW-516D 25-27' | < TIER 1

LEGEND

—8.9— APPROXIMATE EXTENT OF SOIL EXHIBITING TCE CONCENTRATIONS GREATER THAN TIER 1 TACO VALUES FOR INDUSTRIAL-COMMERCIAL INHALATION ROUTE OF EXPOSURE

MONITORING WELL

SOIL BORING COMPLETED BY CLAYTON (1200 SERIES)

SOIL BORING COMPLETED BY STS (1992 & 1995)

SOIL BORING COMPLETED BY CEI (8/98, 2/99 AND 12/00)

SOIL BORING COMPLETED BY CEI (11/00)

NOTES:
1. ALL RESULTS SHOWN IN mg/kg.
2. TIER 1 = MOST CONSERVATIVE SOIL REMEDIATION OBJECTIVE ESTABLISHED IN TACO.

SCALE IN FEET
0 50 100 200

CHECK BY	
DRAWN BY	BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526307E1
PRJ NO.	65263.01

SOIL SAMPLES IN THE 20-30' DEPTH INTERVAL

LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE 2.1-5E

SB-801	35-37'
TCE	3.9

SB-620	36-38'
< TIER 1	

SB-621	35-37'
TCE	2.1

B-122	30-32'	32.5-34.5'
TCE	4.0	0.91

SB-819	30-32'	36-38'
TCE	<TIER 1	<TIER 1

SB-602	35-37'
TCE	2.4

MW501D	35-37'
TCE	0.14

SB-601	35-37'
TCE	0.24

SB-804	38-40'
TCE	0.34

MW-1114D	36-38'
< TIER 1	

SB-807	38-40'
TCE	0.062

MW-522D	38-40'
< TIER 1	

SB-805	38-40'
TCE	6.5
CIS-1,2-DCE	0.8

SB-613	37-39'
TCE	1.3

SB-802	38-40'
< TIER 1	

SB-806	38-40'
TCE	1.5

SB-612	37-39'
TCE	0.51

SB-608	35-37'
TCE	1.2

SB-600	35-37'
TCE	0.24

MW-517D	35-37'
< TIER 1	

MW-500D	35-37'
TCE	0.18

SB-614	37-39'
< TIER 1	

SB-609	37-39'
TCE	3.0

SB-611	35-37'
TCE	0.22

MW-126	35-37'
< TIER 1	

MW-516D	35-37'
< TIER 1	

MW-515D	35-37'
TCE	0.7

CSB-1207	36-38'
TCE	0.914
1,1,1-TCA	< TIER 1
PCE	< TIER 1

SB-605	35-37'
TCE	9.6
CIS-1,2-DCE	0.28

CSB-1200	32-34'
TCE	0.609

CSB-1206	36-38'
TCE	8.36
PCE	0.239

SB-607	35-37'
TCE	3.1
PCE	0.12

MW-1108S	36-38'
TCE	16.8
PCE	0.394
CIS-1,2-DCE	0.182

MW-105	35-37'
TCE	9.2

CSB-1205	34-36'
TCE	0.913
PCE	< TIER 1

CSB-1202	38-40'
TCE	11.5
PCE	0.371

CSB-1204	30-32'
TCE	0.59
PCE	< TIER 1

SB-405	33.5-35'
< TIER 1	

SB-404	38.5-40'
< TIER 1	

CSB-1203	30-32'
TCE	3.09

CSB-1208	32-34'
TCE	0.11

CSB-1210	36-38'
TCE	0.194

CSB-1209	34-36'
TCE	< TIER 1

SB-808	38-40'
TCE	1.4

SB-617	38-40'
TCE	0.21

MW-120	35-37'
TCE	0.301

MW-514D	35-37'
< TIER 1	

MW-519D	33-35'
< TIER 1	

SB-618	34-36'
< TIER 1	

MW-1102D	39'
< TIER 1	

MW-1113D	32-34'
TCE	< TIER 1

MW-518D	32-34'
< TIER 1	

OGDEN AVENUE (RTE 34)

LOCKFORMER FACILITY

SITE BOUNDARY

BUILDING

0.060

SB-620, SB-801, SB-605, SB-621, B-122, CSB-1200, CSB-1207, MW-1108S, MW-105, SB-602, CSB-1206, CSB-1202, SB-607, CSB-1205, SB-601, CSB-1204, CSB-1203, CSB-1208, CSB-1210, CSB-1209, SB-608, SB-600, MW-120, SB-617, SB-609, SB-618, SB-611, MW-500D, MW-515, MW-514D, SB-616, MW-516D, MW-126, MW-519D, MW-518D, MW-1102D, MW-1113D, MW-515D, SB-819, SB-804, MW-501D, SB-807, SB-805, SB-613, MW-522, SB-806, SB-612, SB-802, MW-517D, MW-1114D, B-404, B-405

SCALE IN FEET

0 50 100 200

LEGEND

—0.060— APPROXIMATE EXTENT OF SOIL EXHIBITING TCE CONCENTRATIONS GREATER THAN TIER 1 TACO VALUES FOR SOIL COMPONENT OF THE GROUNDWATER INGESTION EXPOSURE ROUTE FOR CLASS I

MONITORING WELL

SOIL BORING COMPLETED BY CLAYTON (1200 SERIES)

SOIL BORING COMPLETED BY STS (1992 & 1995)

SOIL BORING COMPLETED BY CEI (8/98, 2/99 AND 12/00)

SOIL BORING COMPLETED BY CEI (11/00)

NOTES:
1. ALL RESULTS SHOWN IN mg/kg.
2. TIER 1 = MOST CONSERVATIVE SOIL REMEDIATION OBJECTIVE ESTABLISHED IN TACO.

CHECK BY	
DRAWN BY	BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526307F1
PRJ NO.	65263.01

SOIL SAMPLES IN THE 30-40' DEPTH INTERVAL

LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE 2.1-5F

CSB-1206	44-46'	48-50'
TCE	6.24	< TIER 1
PCE	0.218	< TIER 1

CSB-1205	44-46'	46-48'
TCE	0.634	0.624
PCE	< TIER 1	< TIER 1

SB-602	45-47'
TCE	13.0

SB-803	48-50'
< TIER 1	

MW-501D	42-44'
< TIER 1	

CSB-1204	42-44'
TCE	1.1
PCE	< TIER 1

B-121	45-47'
TCE	< TIER 1

CSB-1210	42-44'	48-50'
TCE	0.816	< TIER 1

SB-807	48-50'
TCE	51.0
CIS-1,2-DCE	27.0

MW-522	48-50'
TCE	0.81

SB-805	46-48'
TCE	22.0
CIS-1,2-DCE	26.0

SB-802	48-50'
< TIER 1	

SB-806	48-50'
< TIER 1	

MW-521D	48-50'
< TIER 1	

SB-612	47-49'
< TIER 1	

SB-614	44-46'
< TIER 1	

MW-402	48.5-50'
< TIER 1	

CSB-126B	42-44'	44-46'
TCE	< TIER 1	< TIER 1

MW-520	48-50'
TCE	0.1

SB-801	45-47'
TCE	8.2

CSB-1207	44-46'
TCE	20.1
PCE	0.0214

OGDEN AVENUE (RTE 34)

SB-605	43-45'
TCE	7.8
CIS-1,2-DCE	0.15

CSB-1200	46-48'	48-50'
TCE	50.9	2.14
PCE	< TIER 1	< TIER 1
1,1,1-TCA	< TIER 1	< TIER 1

MW-1108S	46-48'	48-50'
TCE	34.9	< TIER 1
PCE	0.408	< TIER 1

CSB-1202	45-47'
TCE	0.79

CSB-1203	48-50'
< TIER 1	

CSB-1208	44-46'	48-50'
TCE	0.911	< TIER 1

MW-104	42-44'
TCE	1.1

CSB-1209	40-42'	46-48'
TCE	0.118	< TIER 1

MW-403	43.5-45'
< TIER 1	

MW-120	40-42'	45-47'	47-49'
< TIER 1	< TIER 1	< TIER 1	

SB-608	42-44'
TCE	0.15

SB-609	43-45'
< TIER 1	

MW-514D	45-47'
< TIER 1	

SB-611	42-44'
< TIER 1	

LOCKFORMER FACILITY

SITE BOUNDARY

BUILDING

BUILDING

SB-801 SB-803 SB-605 CSB-1207 CSB-1200 MW-501D SB-602 CSB-1206 MW-1108S CSB-1205 CSB-1202 CSB-1204 CSB-1203 MW-104 B-121 CSB-1208 CSB-1210 CSB-1209 SB-608 MW-403 MW-120 SB-609 SB-611 MW-402 MW-514D SB-807 SB-805 SB-612 MW-522 SB-806 SB-802 SB-614 MW-521 MW-126 MW-520

LEGEND

- MONITORING WELL
- SOIL BORING COMPLETED BY CLAYTON (1200 SERIES)
- SOIL BORING COMPLETED BY STS (1992 & 1995)
- SOIL BORING COMPLETED BY CEI (8/98, 2/99 AND 12/00)
- SOIL BORING COMPLETED BY CEI (11/00)

NOTES:
1. ALL RESULTS SHOWN IN mg/kg.
2. TIER 1 = MOST CONSERVATIVE SOIL REMEDIATION OBJECTIVE ESTABLISHED IN TACO.

SCALE IN FEET
0 50 100 200

CHECK BY	
DRAWN BY	BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526307G1
PRJ NO.	65263.01

SOIL SAMPLES IN THE 40-50' DEPTH INTERVAL

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE 2.1-5G

SB-605 52-54'
< TIER 1

CSB-1202 50-52' 56-58' 60-62' 66-68' 72-74' 78-80' 82-84'
TCE < TIER 1 0.472 < TIER 1 < TIER 1 < TIER 1 < TIER 1 < TIER 1

OGDEN AVENUE (RTE 34)

CSB-1207 50-52' 58-60' 74-76'
TCE 0.115 < TIER 1 < TIER 1

MW-401 53.5-55'
< TIER 1

CSB-1206 52-54' 58-60'
< TIER 1 < TIER 1

CSB-1205 50-52' 56-58'
TCE < TIER 1 < TIER 1

B-121 55-57' 50-52'
<TIER 1 <TIER 1

CSB-1210 54-56' 58-60' 68-70'
< TIER 1 < TIER 1 < TIER 1

MW-120 55.5-57.5'
< TIER 1

MW-513D 50-52'
< TIER 1

MW-522

MW-522D 55-57'
< TIER 1

MW-517 55-57'
< TIER 1

MW-517D

MW-521D 55-57'
< TIER 1

MW-521

MW-126

MW-120 50-52' 65-67' 70-77' 75-77'
< TIER 1 < TIER 1 < TIER 1 < TIER 1

MW-520

MW-520 63-65'
< TIER 1

MW-518D

MW-518D 52-54'
< TIER 1

BUILDING

MW-508D 60-62'
< TIER 1

MW-508D

LOCKFORMER FACILITY

CSB-1201 52-54' 56-58'
TCE 42.3 < TIER 1
PCE 0.336 < TIER 1

MW-1108S 56-58' 64-66'
TCE < TIER 1 < TIER 1

CSB-1204 50-52' 53' 56-58'
TCE < TIER 1 < TIER 1 < TIER 1

MW-504D 58-60'
< TIER 1

MW-504D

CSB-1208 52-54' 62-64'
< TIER 1 < TIER 1

MW-403 58.5-60'
< TIER 1

CSB-1209 52-54' 64-66'
< TIER 1 < TIER 1

SITE BOUNDARY

MW-519D 50-52'
< TIER 1

MW-519D

MW-401
SB-605
CSB-1207
CSB-1201
MW-1108S
CSB-1206
CSB-1202
CSB-1205
CSB-1204
B-121
CSB-1208
CSB-1210
CSB-1209
MW-120
MW-403
MW-513D

LEGEND

- MONITORING WELL
- SOIL BORING COMPLETED BY CLAYTON (1200 SERIES)
- SOIL BORING COMPLETED BY STS (1992 & 1995)
- SOIL BORING COMPLETED BY CEI (8/98, 2/99 AND 12/00)

NOTES:
1. ALL RESULTS SHOWN IN mg/kg.
2. TIER 1 = MOST CONSERVATIVE SOIL REMEDIATION OBJECTIVE ESTABLISHED IN TACO.

SCALE IN FEET
0 50 100 200

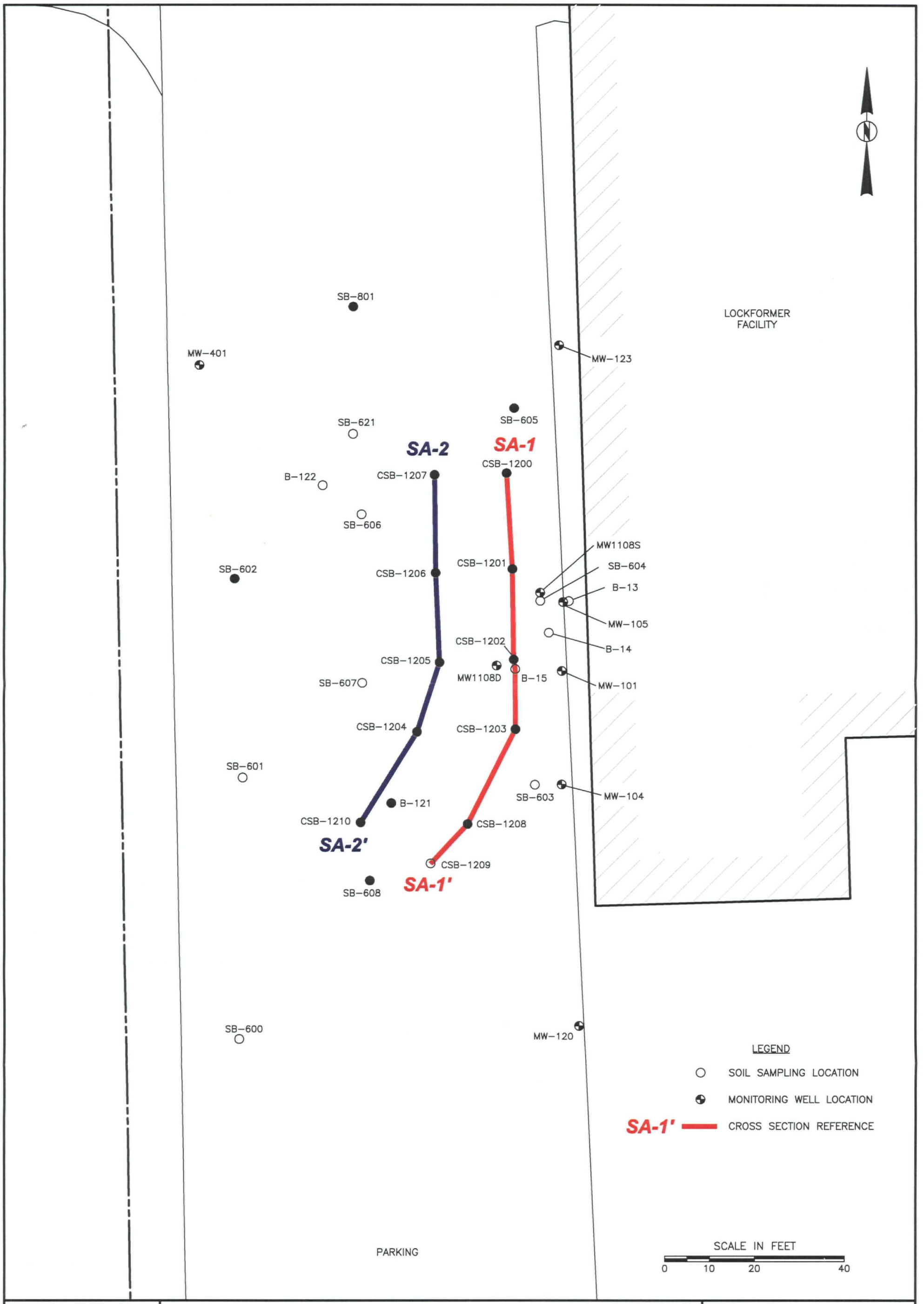
CHECK BY	
DRAWN BY	BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526307H1
PRJ NO.	65263.01

SOIL SAMPLES IN THE OVER 50' DEPTH INTERVAL

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE 2.1-5H



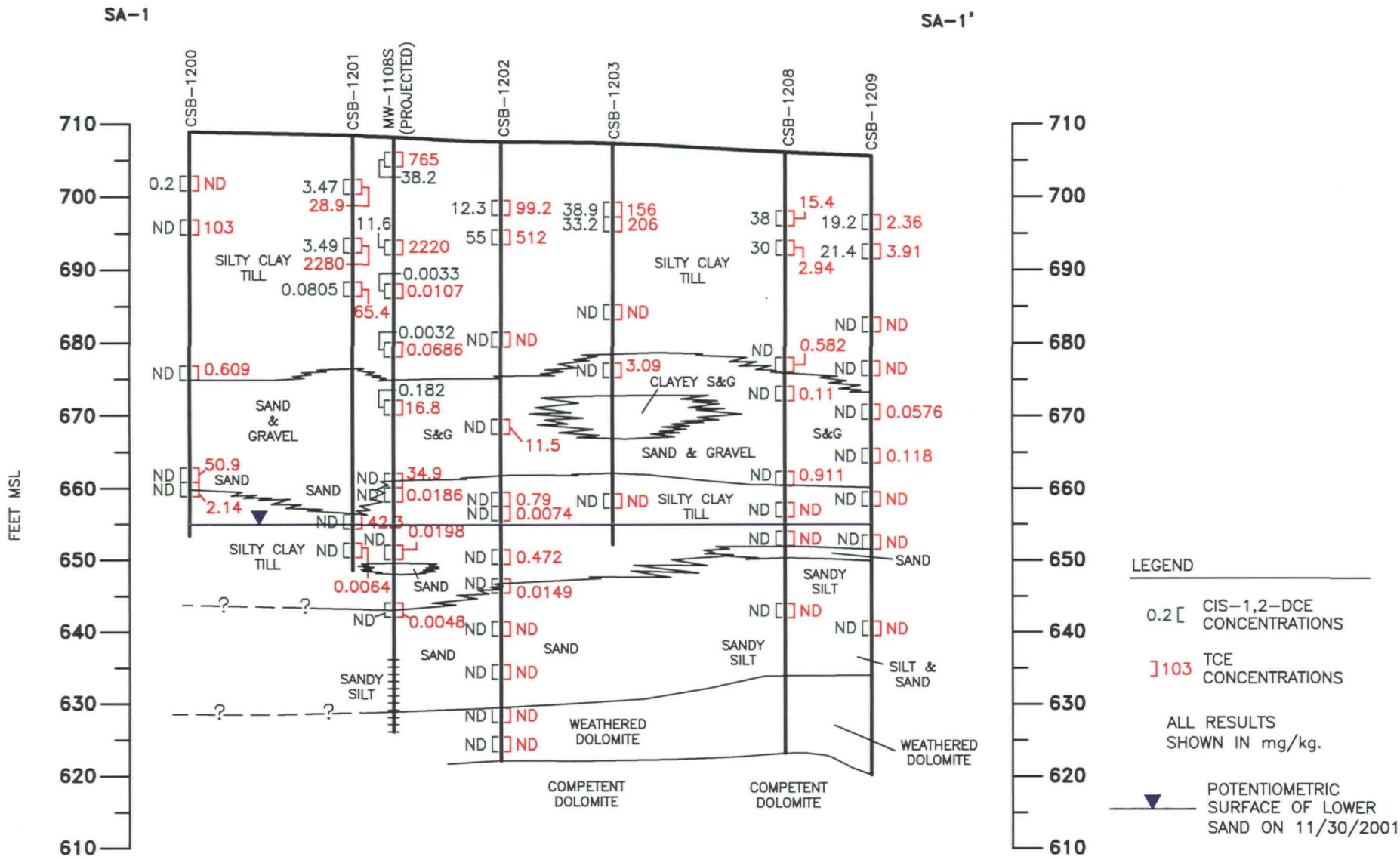
CHECK BY	
DRAWN BY	BCP
DATE	12–12–01
SCALE	AS SHOWN
CAD NO.	6526302W
PRJ NO.	65263.01

CROSS SECTION LOCATIONS FOR
SA–1/SA–1' AND SA–2/SA–2'

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton
GROUP SERVICES
3140 FINLEY ROAD, DOWNERS GROVE, IL 60515

FIGURE 2.1–6



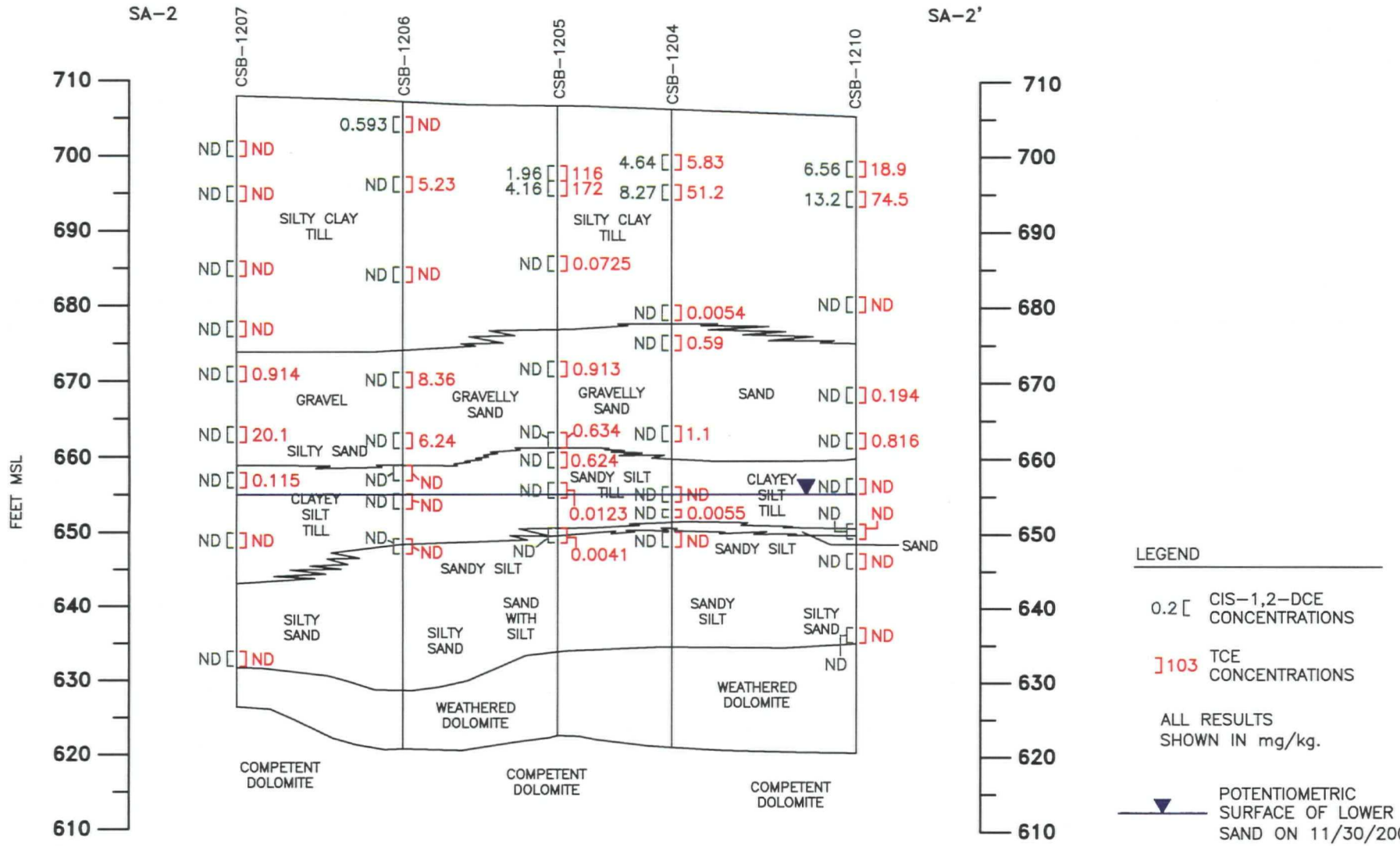
CHK BY	
DWN BY	OS/BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526302u
PRJ NO.	65263.01

CROSS SECTION "SA-1 – SA-1'"
WITH TCE AND CIS-1,2-DCE SAMPLE RESULTS

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
2.1-7



HORIZONTAL SCALE IN FEET

0 10 20 40

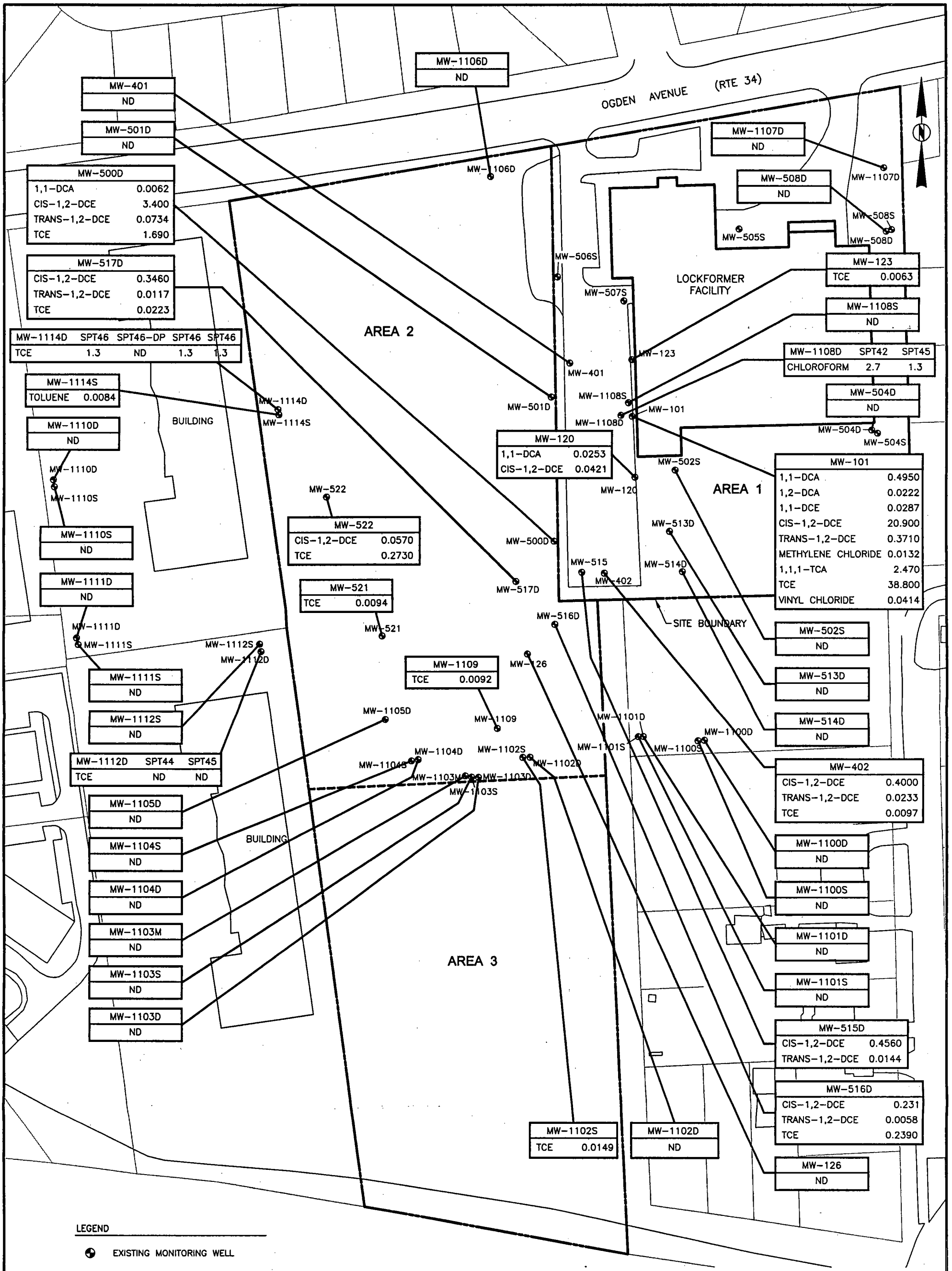
CHK BY	
DWN BY	OS/BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526302v
PRJ NO.	15-65263

CROSS SECTION "SA-2 - SA-2'"
WITH TCE AND CIS-1,2-DCE SAMPLE RESULTS

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
2.1-8



CHECK BY	
DRAWN BY	BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526308C
PRJ NO.	65263.01

MOST RECENT GROUNDWATER SAMPLING RESULTS
FROM MONITORING WELLS IN AREAS 1 AND 2

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES
3140 FINLEY ROAD, DOWNERS GROVE, IL 60515

FIGURE 2.1-9

AREA 3

CSB–1560	24–28'
TCE	11

CSB–1561	24–28'
TCE	20

CSB–1573	24–28'
TCE	30.5

CSB–1562	24–28'
TCE	122
PCE	14
CIS–1,2–DCE	2

CSB–1562	24–28'
TCE	232
PCE	24.4
CIS–1,2–DCE	ND

CSB–1564	24–28'
TCE	161
PCE	3
CIS–1,2–DCE	4

CSB–1565	24–28'
TCE	140
PCE	4
CIS–1,2–DCE	4

CSB–1566	24–28'
TCE	123
PCE	5
CIS–1,2–DCE	4

CSB–1567	24–28'
TCE	116
PCE	2
CIS–1,2–DCE	4

CSB–1568	24–28'
TCE	50
PCE	1
CIS–1,2–DCE	1

CSB–1569	24–28'
TCE	27
PCE	1

CSB–1570	24–28'
TCE	32
PCE	1
MW–1115	
TCE	91.3

CSB–1510
CSB–1511
CSB–1527
CSB–1512
CSB–1542
CSB–1513
CSB–1528
CSB–1543
CSB–1572
CSB–1544
CSB–1514
CSB–1529
MW–1113D
MW–1113S
MW–1113M
CSB–1571
CSB–1515
CSB–1545
CSB–1530
CSB–1546
CSB–1547
CSB–1548
CSB–1549
CSB–1550
CSB–1551
CSB–1552
CSB–1553
CSB–1554
CSB–1555
CSB–1556
CSB–1557
CSB–1573
MW–1115
CSB–1570
CSB–1569
CSB–1568
CSB–1567
CSB–1566
CSB–1565
CSB–1564
CSB–1563
CSB–1562
CSB–1561
CSB–1560
MW–1116
CSB–1559
CSB–1558

MW–1113S	
TCE	379

MW–1113M	
ND	
MW–1113M–DUP	
ND	

MW–1113D–SPT37	
ND	
MW–1113D–SPT38	
ND	
MW–1113D–SPT39	
ND	

CSB–1548	10–12'
TCE	18

CSB–1549	10–12'
TCE	8

CSB–1550	10–12'
TCE	23

CSB–1551	10–12'
TCE	3

CSB–1552	10–12'
TCE	12

CSB–1553	24–28'
TCE	42

CSB–1554	24–28'
TCE	19

CSB–1555	24–28'
TCE	4

CSB–1556	24–28'
TCE	13
PCE	2

CSB–1557	24–28'
TCE	53
PCE	6

CSB–1559	24–28'
TCE	18
MW–1116	
TCE	21.7

CSB–1558	24–28'
TCE	9

LEGEND

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SANITARY SEWER LINE
- STORM SEWER LINE
- FIELD GC
- FIRST ENV. LAB, INC. (FIXED LAB RESULTS)

NOTE: GROUNDWATER DEPTHS ARE APPROXIMATE.
ALL RESULTS SHOWN IN ug/L

SCALE IN FEET
0 25 50 100

CHECK BY	
DRAWN BY	BCP
DATE	12–12–01
SCALE	AS SHOWN
CAD NO.	6526303F
PRJ NO.	65263.01

SUMMARY OF THE GROUNDWATER SAMPLING RESULTS FROM MONITORING WELLS AND THE 1500–SERIES BORINGS IN AREA 3

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE 2.2–2

N

SEMI-REGIONAL SURFACE WATER AND GROUND WATER MEASUREMENT POINTS

Legend

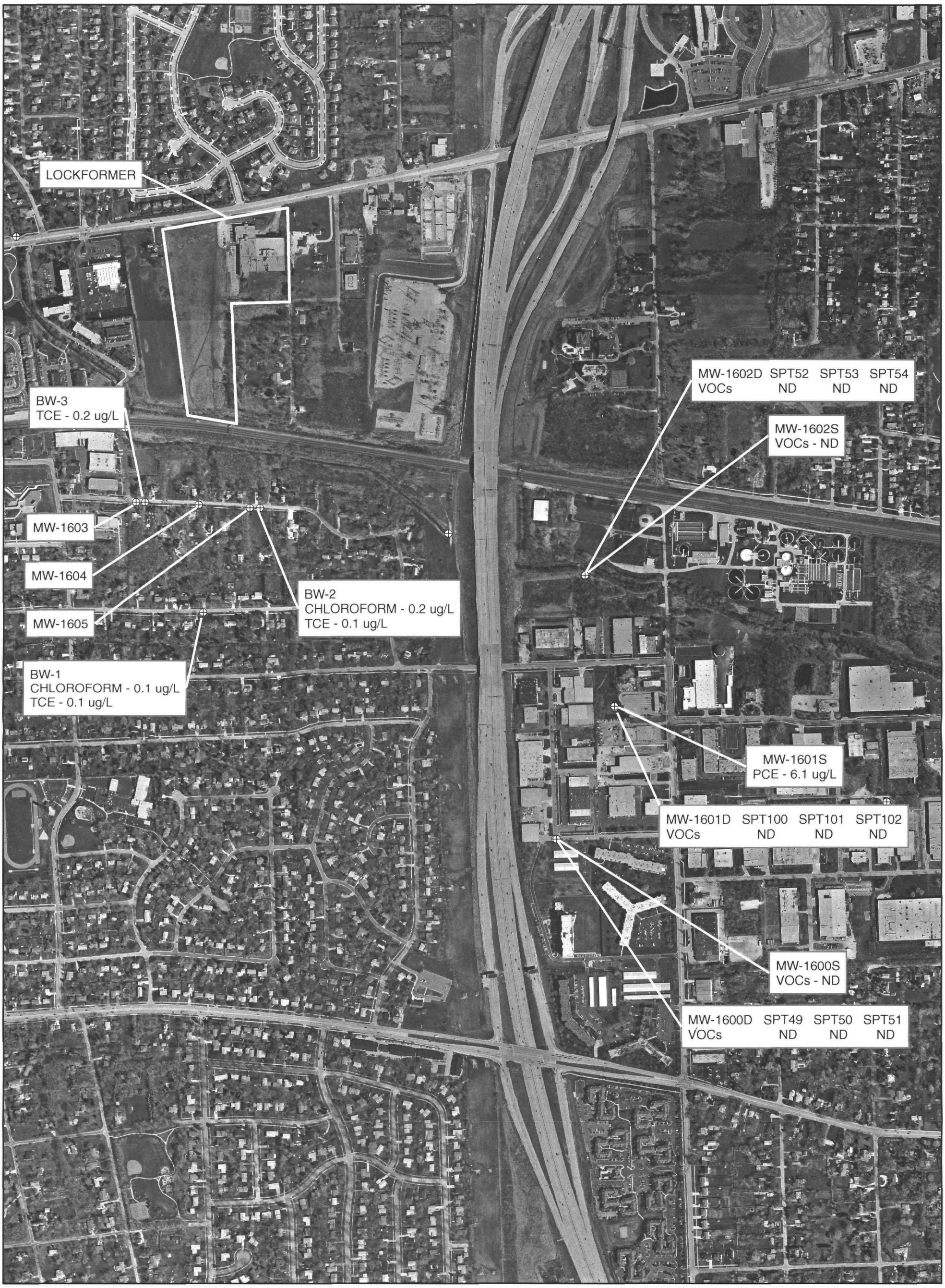
⊕ SAMPLE SITE LOCATION

0 2,400 4,800 7,200 9,600 Feet

Project: 15-65263.01
GWT 1205.MXD
Date: 12/07/01
Drawn By SFS

Clayton GROUP SERVICES

FIGURE 2.3-1



N

OFFSITE GROUNDWATER MONITORING RESULTS
THE LOCKFORMER COMPANY / LISLE, ILLINOIS

Legend

⊕ MONITORING WELL LOCATION

ND - NO DETECTIONS

0 700 1,400 2,100 2,800 Feet

Project: 15-65263.01
OFF SITE GW.MXD
Date: 12/07/01
Drawn By SFS

Clayton GROUP SERVICES

FIGURE 2.3-2

TABLES

TABLE 2.1-1
Clayton Soil Borings Inside the Facility Building
Around the Storm and Sanitary Sewer, and the Vapor Degreaser

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* Taco Tier 1 Soil Remediation Objectives	SAMPLE LOCATION											
		CSB-1300			CSB-1301			CSB-1302			CSB-1303		
		2-4 ft	4-6 ft	12-14 ft	6-8 ft	10-12 ft	14-16 ft	2-4 ft	8-10 ft	14-16 ft	2-4 ft	4-6 ft	14-16 ft
Acetone	16	<0.010	<0.010	<0.010	0.179	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010
Benzene	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
Bromodichloromethane	0.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
Bromoform	0.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
Bromomethane	0.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010
2-Butanone	NE	<0.010	<0.010	<0.010	0.036	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010
Carbon disulfide	32	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
Carbon tetrachloride	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
Chlorobenzene	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
Chlorodibromomethane	0.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
Chloroethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010
Chloroform	0.3	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
Chloromethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010
1,1,-Dichloroethane	23	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
1,2-Dichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
1,1,-Dichloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
cis,1-2-Dichloroethene	0.4	<0.005	<0.005	<0.005	0.157	0.555	0.0084	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
trans,1-2-Dichloroethene	0.7	<0.005	<0.005	<0.005	0.0026	0.0212	0.0015	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
1,2-Dichloropropane	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
cis,1-3-Dichloropropene	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
trans,1,3-Dichloropropene		<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.100	<0.005
Ethyl benzene	13	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
2-Hexanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010
4-Methyl-2-pentanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010
Methylene chloride	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
Styrene	4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
1,1,2,2-Tetrachloroethane	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
Tetrachloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
Toluene	12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
1,1,1-Trichloroethane	2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
1,1,2-Trichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005
Trichloroethene	0.06	0.0097	3.61	<0.005	0.0036	0.051	0.0027	<0.005	<0.005	<0.005	<0.005	1.07	<0.005
Vinyl acetate	170	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010
Vinyl chloride	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010
Xylenes (total)	150	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-1
Clayton Soil Borings Inside the Facility Building
Around the Storm and Sanitary Sewer, and the Vapor Degreaser

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* Taco Tier 1 Soil Remediation Objectives	SAMPLE LOCATION											
		CSB-1304			CSB-1305			CSB-1306			CSB-1307		
		2-4 ft	8-10 ft	14-16 ft	8-10 ft	10-12 ft	14-16 ft	4-6 ft	10-12 ft	14-16 ft	8-10 ft	10-12 ft	14-16 ft
Acetone	16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.1	<0.010
Benzene	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	0.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon disulfide	32	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon tetrachloride	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.3	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,-Dichloroethane	23	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,-Dichloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-2-Dichloroethene	0.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1-2-Dichloroethene	0.7	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-3-Dichloropropene	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1,3-Dichloropropene		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethyl benzene	13	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene chloride	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl acetate	170	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl chloride	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (total)	150	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-1
Clayton Soil Borings Inside the Facility Building
Around the Storm and Sanitary Sewer, and the Vapor Degreaser

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* Taco Tier 1 Soil Remediation Objectives	SAMPLE LOCATION											
		CSB-1308			CSB-1309			CSB-1310			CSB-1311		
		2-4 ft	12-14 ft	14-16 ft	2-4 ft	8-10 ft	14-16 ft	0-2 ft	2-4 ft	14-16 ft	2-4 ft	8-10 ft	14-16 ft
Acetone	16	<0.010	<0.010	<0.010	<0.010	0.085	<0.010	<0.010	<0.010	<0.010	<0.010	0.131	<0.010
Benzene	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	0.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	<0.010	<0.010	<0.010	<0.010	0.005	<0.010	<0.010	<0.010	<0.010	<0.010	0.0129	<0.010
Carbon disulfide	32	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon tetrachloride	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.3	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,-Dichloroethane	23	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,-Dichloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-2-Dichloroethene	0.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1-2-Dichloroethene	0.7	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-3-Dichloropropene	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1,3-Dichloropropene		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethyl benzene	13	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene chloride	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.06	0.0048	<0.005	<0.005	<0.005	<0.005	<0.005	0.0158	0.0683	<0.005	<0.005	<0.005	<0.005
Vinyl acetate	170	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl chloride	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (total)	150	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-1
Clayton Soil Borings Inside the Facility Building
Around the Storm and Sanitary Sewer, and the Vapor Degreaser

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* Taco Tier 1 Soil Remediation Objectives	SAMPLE LOCATION												
		CSB-1312			CSB-1313			CSB-1314			CSB-1327			CSB-1328
		2-4 ft	8-10 ft	14-16 ft	2-4 ft	8-10 ft	14-16 ft	4-6 ft	8-10 ft	14-16 ft	2-4 ft	10-12 ft	14-16 ft	0-2 ft
Acetone	16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	0.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon disulfide	32	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon tetrachloride	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.3	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,-Dichloroethane	23	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,-Dichloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-2-Dichloroethene	0.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1-2-Dichloroethene	0.7	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-3-Dichloropropene	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1,3-Dichloropropene		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethyl benzene	13	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene chloride	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.06	<0.005	<0.005	<0.005	0.0296	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl acetate	170	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl chloride	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (total)	150	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0055	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-2
Clayton Soil Boring Results
Around South Exterior Door

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO Tier 1 Soil Remediation Objectives	SAMPLE LOCATION AND DEPTH											
		CSB-1401			CSB-1402			CSB-1403			CSB-1404		
		0-2 ft	8-10 ft	14-16 ft	0-2 ft	8-10 ft	14-16 ft	2-4 ft	8-10 ft	14-16 ft	2-4 ft	4-6 ft	14-16 ft
Acetone	16	0.0844	0.0227	0.0206	0.0704	0.0269	0.0311	0.0141	0.0156	0.0276	<0.010	0.0416	0.0454
Benzene	0.03	<0.005	<0.005	<0.005	<0.005	0.0012	<0.005	<0.005	<0.005	<0.005	<0.005	0.0019	<0.005
Bromodichloromethane	0.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.8	<0.005	<0.005	0.0016	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	0.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	0.0081	0.0035	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon disulfide	32	0.0056	<0.005	<0.005	0.0065	<0.005	<0.005	<0.005	<0.005	0.0042	<0.005	0.0042	<0.005
Carbon tetrachloride	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.3	<0.005	<0.005	0.0018	<0.005	<0.005	<0.005	<0.005	<0.005	0.0033	<0.005	<0.005	<0.005
Chloromethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	23	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0028	<0.005
1,2-Dichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1,2-Dichloroethene	0.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans-1,2-Dichloroethene	0.7	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1,3-Dichloropropene	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans-1,3-Dichloropropene		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethyl benzene	13	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene chloride	0.02	<0.005	0.0068	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	12	<0.005	0.0016	<0.005	<0.005	0.0016	<0.005	0.0017	0.0018	<0.005	0.0014	0.0021	<0.005
1,1,1-Trichloroethane	2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.06	<0.005	<0.005	<0.005	<0.005	0.0089	<0.005	<0.005	<0.005	<0.005	<0.005	0.0017	<0.005
Vinyl Acetate	170	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.01	<0.010	<0.010	0.0021	<0.010	<0.010	0.0059	<0.010	<0.010	0.0057	<0.010	<0.010	0.0031
Xylenes (total)	150	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B. Table A
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-2
Clayton Soil Boring Results
Around South Exterior Door

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO Tier 1 Soil Remediation Objectives	SAMPLE LOCATION AND DEPTH											
		CSB-1405			CSB-1406			CSB-1407			CSB-1408		
		2-4 ft	8-10 ft	14-16 ft	0-2 ft	8-10 ft	14-16 ft	2-4 ft	8-10 ft	14-16 ft	2-4 ft	8-10 ft	14-16 ft
Acetone	16	0.0199	0.0154	0.0144	0.109	0.0942	0.0215	0.0873	0.0799	0.0255	0.199	0.0523	0.0184
Benzene	0.03	0.0012	<0.005	0.0014	<0.005	<0.005	0.0015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	0.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	<0.010	<0.010	<0.010	<0.010	0.0106	<0.010	0.0070	0.0053	<0.010	0.0245	<0.010	<0.010
Carbon disulfide	32	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0043	<0.005
Carbon tetrachloride	0.07	<0.005	0.0031	0.0031	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.3	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	23	<0.005	0.0057	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1,2-Dichloroethene	0.4	<0.005	0.0048	0.0025	<0.005	0.0055	0.0107	<0.005	<0.005	<0.005	<0.005	0.0072	<0.005
trans-1,2-Dichloroethene	0.7	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1,3-Dichloropropene	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans-1,3-Dichloropropene		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethyl benzene	13	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene chloride	0.02	0.0072	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	<0.005	0.0011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	12	0.002	0.0012	0.0023	<0.005	<0.005	0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	<0.005	0.0243	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.06	0.0018	0.0632	<0.005	0.0063	<0.005	<0.005	<0.005	0.0052	<0.005	0.0029	0.0062	<0.005
Vinyl Acetate	170	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.01	<0.010	<0.010	0.0014	<0.010	0.0088	0.0026	<0.010	<0.010	0.0016	<0.010	0.0057	0.0024
Xylenes (total)	150	0.0019	0.0016	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B. Table A
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-3
Soil Analytical Results
Sewer System Sediment

The Lockformer Company / Lisle, Illinois

COMPOUNDS	*TACO Tier 1 Soil Remediation Objectives	SAMPLE LOCATION		
		MH-1	MH-4	CB-1
Acetone	16	<0.010	<0.010	<0.010
Benzene	0.03	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<0.005	<0.005	<0.005
Bromoform	0.8	<0.005	<0.005	<0.005
Bromomethane	0.2	<0.010	<0.010	<0.010
2-Butanone	NE	<0.010	<0.010	<0.010
Carbon disulfide	32	<0.005	<0.005	<0.005
Carbon tetrachloride	0.07	<0.005	<0.005	<0.005
Chlorobenzene	1	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<0.005	<0.005	<0.005
Chloroethane	NE	<0.010	<0.010	<0.010
Chloroform	0.3	<0.005	<0.005	<0.005
Chloromethane	NE	<0.010	<0.010	<0.010
1,1,-Dichloroethane	23	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	<0.005	<0.005	<0.005
1,1,-Dichloroethene	0.06	<0.005	<0.005	<0.005
cis,1-2-Dichloroethene	0.4	<0.005	<0.005	<0.005
trans,1-2-Dichloroethene	0.7	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<0.005	<0.005	<0.005
cis,1-3-Dichloropropene	0.004	<0.005	<0.005	<0.005
trans,1,3-Dichloropropene		<0.005	<0.005	<0.005
Ethyl benzene	13	<0.005	<0.005	<0.005
2-Hexanone	NE	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<0.010	<0.010	<0.010
Methylene chloride	0.02	<0.005	<0.005	<0.005
Styrene	4	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	<0.005	<0.005	<0.005
Toluene	12	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<0.005	<0.005	<0.005
Trichloroethene	0.06	<0.005	<0.005	<0.005
Vinyl acetate	170	<0.010	<0.010	<0.010
Vinyl chloride	0.01	<0.010	<0.010	<0.010
Xylenes (total)	150	<0.005	<0.005	<0.005

NOTES:

* = Most conservative remediation objective established in 35 IAC 742 Appendix B.Table A.
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-4
Soil Sample Results
1200 Series Borings in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 SOIL REMEDIATION OBJECTIVES	SAMPLE LOCATION AND DEPTH									
		CSB-1200					CSB-1201				
		6-8 ft	12-14 ft	32-34 ft	46-48 ft	48-50 ft	6-8 ft	14-16 ft	20-22 ft	52-54 ft	56-58 ft
Acetone	16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	0.0279	<0.010	<0.100	<0.010
Benzene	0.03	<0.005	0.0068	<0.005	<0.005	<0.005	<0.100	0.0114	<0.005	<0.100	<0.005
Bromodichloromethane	0.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005
Bromoform	0.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005
Bromomethane	0.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010
2-Butanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010
Carbon disulfide	32	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005
Carbon tetrachloride	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005
Chlorobenzene	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005
Chlorodibromomethane	0.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005
Chloroethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010
Chloroform	0.3	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	0.0123	<0.005	<0.100	<0.005
Chloromethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010
1,1,-Dichloroethane	23	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	0.0899	0.081	<0.100	<0.005
1,2-Dichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	0.0074	<0.005	<0.100	<0.005
1,1,-Dichloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	0.0608	0.0428	<0.100	<0.005
cis,1-2-Dichloroethene	0.4	0.2	<0.005	<0.005	<0.005	<0.005	3.47	3.49	0.0805	<0.100	<0.005
trans,1-2-Dichloroethene	0.7	0.0205	<0.005	<0.005	<0.005	<0.005	<0.100	0.0232	0.015	<0.100	<0.005
1,2-Dichloropropane	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005
cis,1-3-Dichloropropene	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005
trans,1,3-Dichloropropene		<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005
Ethyl benzene	13	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005
2-Hexanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010
4-Methyl-2-pentanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010
Methylene chloride	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	0.119	<0.005	<0.100	<0.005
Styrene	4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005
1,1,2,2-Tetrachloroethane	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005
Tetrachloroethene	0.06	<0.005	<0.005	<0.005	0.0076	<0.005	0.538	11.5	<0.005	0.336	<0.005
Toluene	12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	0.0315	<0.005	<0.100	<0.005
1,1,1-Trichloroethane	2	<0.005	0.0135	<0.005	0.0011	<0.005	<0.100	0.0311	<0.005	<0.100	<0.005
1,1,2-Trichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	0.0163	<0.005	<0.100	<0.005
Trichloroethene	0.06	<0.005	103	0.609	50.9	2.14	28.9	2,280	65.4	42.3	0.0064
Vinyl acetate	170	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010
Vinyl chloride	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	0.0149	0.0287	<0.100	<0.010
Xylenes (total)	150	<0.005	<0.005	<0.005	<0.005	<0.005	<0.100	0.0018	<0.005	<0.100	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-4
Soil Sample Results
1200 Series Borings in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 SOIL REMEDIATION OBJECTIVES	SAMPLE LOCATION AND DEPTH											
		CSB-1202											
		8-10 ft	12-14 ft	26-28 ft	38-40 ft	48-50 ft	50-52 ft	56-58 ft	60-62 ft	66-68 ft	72-74 ft	78-80 ft	82-84 ft
Acetone	16	<1.000	<1.000	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.03	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.8	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	0.2	<1.000	<1.000	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	<1.000	<1.000	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon disulfide	32	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon tetrachloride	0.07	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	1	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	<1.000	<1.000	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.3	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	<1.000	<1.000	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,-Dichloroethane	23	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,-Dichloroethene	0.06	<1.000	4.86	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-2-Dichloroethene	0.4	12.3	55	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1-2-Dichloroethene	0.7	<1.000	1.95	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-3-Dichloropropene	0.004	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1,3-Dichloropropene		<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethyl benzene	13	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	<1.000	<1.000	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<1.000	<1.000	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene chloride	0.02	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	4	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	<1.000	<1.000	<0.005	0.371	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	12	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	24.2	89	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.06	99.2	512	<0.005	11.5	0.79	0.0074	0.472	0.0149	<0.005	<0.005	<0.005	<0.005
Vinyl acetate	170	<1.000	<1.000	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl chloride	0.01	<1.000	<1.000	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (total)	150	<1.000	<1.000	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-4
Soil Sample Results
1200 Series Borings in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 SOIL REMEDIATION OBJECTIVES	SAMPLE LOCATION AND DEPTH												
		CSB-1203					CSB-1204							
		8-10 ft	10-12 ft	22-24 ft	30-32 ft	48-50 ft	6-8 ft	10-12 ft	26-28 ft	30-32 ft	42-44 ft	50-52 ft	53 ft	56-58 ft
Acetone	16	<1.000	<1.000	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.03	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.8	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	0.2	<1.000	<1.000	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	<1.000	<1.000	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon disulfide	32	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon tetrachloride	0.07	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	1	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	<1.000	<1.000	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.3	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	<1.000	<1.000	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,-Dichloroethane	23	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,-Dichloroethene	0.06	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-2-Dichloroethene	0.4	38.9	33.2	<0.005	<0.100	<0.005	4.64	8.27	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1-2-Dichloroethene	0.7	<1.000	<1.000	<0.005	<0.100	<0.005	0.333	0.263	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-3-Dichloropropene	0.004	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1,3-Dichloropropene		<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethyl benzene	13	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	<1.000	<1.000	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<1.000	<1.000	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene chloride	0.02	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	0.123	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	4	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	0.0073	0.0126	<0.005	<0.005	<0.005
Toluene	12	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	4.13	10.8	<0.005	<0.100	<0.005	0.0208	0.432	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.06	156	206	<0.005	3.09	<0.005	5.83	51.2	0.0054	0.59	1.1	<0.005	0.0055	<0.005
Vinyl acetate	170	<1.000	<1.000	<0.010	<0.100	<0.010	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl chloride	0.01	<1.000	<1.000	<0.010	<0.100	<0.010	0.531	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (total)	150	<1.000	<1.000	<0.005	<0.100	<0.005	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-4
Soil Sample Results
1200 Series Borings in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 SOIL REMEDIATION OBJECTIVES	SAMPLE LOCATION AND DEPTH							
		CSB-1205							
		8-10 ft	10-12 ft	20-22 ft	34-36 ft	44-46 ft	46-48 ft	50-52 ft	56-58 ft
Acetone	16	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.03	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.8	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	0.2	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon disulfide	32	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon tetrachloride	0.07	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	1	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.3	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,-Dichloroethane	23	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,-Dichloroethene	0.06	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-2-Dichloroethene	0.4	1.96	4.16	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1-2-Dichloroethene	0.7	<0.100	0.0256	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-3-Dichloropropene	0.004	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1,3-Dichloropropene		<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethyl benzene	13	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene chloride	0.02	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	4	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	<0.100	<0.005	<0.005	0.0165	0.0143	<0.005	<0.005	<0.005
Toluene	12	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	<0.100	0.035	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.06	116	172	0.0725	0.913	0.634	0.624	0.0123	0.0041
Vinyl acetate	170	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl chloride	0.01	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (total)	150	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-4
Soil Sample Results
1200 Series Borings in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 SOIL REMEDIATION OBJECTIVES	SAMPLE LOCATION AND DEPTH							
		CSB-1206							
		2-4 ft	10-12 ft	22-24 ft	36-38 ft	44-46 ft	48-50 ft	52-54 ft	58-60 ft
Acetone	16	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
Benzene	0.03	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Bromoform	0.8	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Bromomethane	0.2	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
2-Butanone	NE	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
Carbon disulfide	32	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Carbon tetrachloride	0.07	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Chlorobenzene	1	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Chloroethane	NE	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
Chloroform	0.3	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Chloromethane	NE	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
1,1,-Dichloroethane	23	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
1,1,-Dichloroethene	0.06	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
cis,1-2-Dichloroethene	0.4	0.593	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
trans,1-2-Dichloroethene	0.7	0.0143	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
cis,1-3-Dichloropropene	0.004	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
trans,1,3-Dichloropropene		<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Ethyl benzene	13	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
2-Hexanone	NE	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
Methylene chloride	0.02	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Styrene	4	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	<0.005	<0.100	<0.005	0.239	0.218	<0.005	<0.005	<0.005
Toluene	12	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Trichloroethene	0.06	<0.005	5.23	<0.005	8.36	6.24	<0.005	<0.005	<0.005
Vinyl acetate	170	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
Vinyl chloride	0.01	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
Xylenes (total)	150	<0.005	<0.100	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-4
Soil Sample Results
1200 Series Borings in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 SOIL REMEDIATION OBJECTIVES	SAMPLE LOCATION AND DEPTH								
		CSB-1207								
		6-8 ft	12-14 ft	22-24 ft	30-32 ft	36-38 ft	44-46 ft	50-52 ft	58-60 ft	74-76 ft
Acetone	16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	0.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon disulfide	32	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon tetrachloride	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.3	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,-Dichloroethane	23	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,-Dichloroethene	0.06	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-2-Dichloroethene	0.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1-2-Dichloroethene	0.7	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-3-Dichloropropene	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1,3-Dichloropropene		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethyl benzene	13	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene chloride	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	<0.005	<0.005	<0.005	<0.005	0.0085	0.0214	<0.005	<0.005	<0.005
Toluene	12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	<0.005	<0.005	<0.005	<0.005	0.0057	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.06	<0.005	<0.005	<0.005	<0.005	0.914	20.1	0.115	<0.005	<0.005
Vinyl acetate	170	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl chloride	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (total)	150	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-4
Soil Sample Results
1200 Series Borings in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 SOIL REMEDIATION OBJECTIVES	SAMPLE LOCATION AND DEPTH							
		CSB-1208							
		8-10 ft	12-14 ft	28-30 ft	32-34 ft	44-46 ft	48-50 ft	52-54 ft	62-64 ft
Acetone	16	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.03	0.0062	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.8	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	0.2	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon disulfide	32	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon tetrachloride	0.07	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	1	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.3	0.0109	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,-Dichloroethane	23	0.109	0.175	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	0.0337	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,-Dichloroethene	0.06	0.0779	0.111	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-2-Dichloroethene	0.4	38	30	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1-2-Dichloroethene	0.7	0.656	0.716	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-3-Dichloropropene	0.004	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1,3-Dichloropropene		<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethyl benzene	13	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene chloride	0.02	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	4	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	12	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	0.0317	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	0.015	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.06	15.4	2.94	0.582	0.11	0.911	<0.005	<0.005	<0.005
Vinyl acetate	170	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl chloride	0.01	0.031	0.127	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (total)	150	<0.005	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-4
Soil Sample Results
1200 Series Borings in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 SOIL REMEDIATION OBJECTIVES	SAMPLE LOCATION AND DEPTH								
		CSB-1209								
		8-10 ft	12-14 ft	22-24 ft	28-30 ft	34-36 ft	40-42 ft	46-48 ft	52-54 ft	64-66 ft
Acetone	16	<0.010	<1.000	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.03	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.8	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	0.2	<0.010	<1.000	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	<0.010	<1.000	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon disulfide	32	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon tetrachloride	0.07	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	1	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	<0.010	<1.000	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.3	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	<0.010	<1.000	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,-Dichloroethane	23	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,-Dichloroethene	0.06	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-2-Dichloroethene	0.4	19.2	21.4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1-2-Dichloroethene	0.7	0.365	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-3-Dichloropropene	0.004	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1,3-Dichloropropene		<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethyl benzene	13	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	<0.010	<1.000	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<0.010	<1.000	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene chloride	0.02	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	4	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	12	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.06	2.36	3.91	<0.005	<0.005	0.0576	0.118	<0.005	<0.005	<0.005
Vinyl acetate	170	<0.010	<1.000	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl chloride	0.01	<0.010	<1.000	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (total)	150	<0.005	<1.000	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-4
Soil Sample Results
1200 Series Borings in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 SOIL REMEDIATION OBJECTIVES	SAMPLE LOCATION AND DEPTH								
		CSB-1210								
		6-8 ft	10-12 ft	24-26 ft	36-38 ft	42-44 ft	48-50 ft	54-56 ft	58-60 ft	68-70 ft
Acetone	16	<1.000	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.03	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.8	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	0.2	<1.000	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	<1.000	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon disulfide	32	1	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon tetrachloride	0.07	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	1	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	<1.000	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.3	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	<1.000	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,-Dichloroethane	23	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,-Dichloroethene	0.06	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-2-Dichloroethene	0.4	6.56	13.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1-2-Dichloroethene	0.7	<1.000	0.414	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis,1-3-Dichloropropene	0.004	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans,1,3-Dichloropropene		<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethyl benzene	13	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	<1.000	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<1.000	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene chloride	0.02	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	4	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	1.2	0.45	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	12	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	<1.000	0.181	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.06	18.9	74.5	<0.005	0.194	0.816	<0.005	<0.005	<0.005	<0.005
Vinyl acetate	170	<1.000	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl chloride	0.01	<1.000	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (total)	150	<1.000	<0.100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-4
Soil Sample Results
1200 Series Borings in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 SOIL REMEDIATION OBJECTIVES	SAMPLE LOCATION AND DEPTH								
		MW-1108S								
		2-4 ft	14-16 ft	20-22 ft	28-30 ft	36-38 ft	46-48 ft	48-50 ft	56-58 ft	64-66 ft
Acetone	16	<5.000	<1.000	<0.010	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
Benzene	0.03	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Bromodichloromethane	0.6	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Bromoform	0.8	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Bromomethane	0.2	<5.000	<1.000	<0.010	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
2-Butanone	NE	<5.000	<1.000	<0.010	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
Carbon disulfide	32	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Carbon tetrachloride	0.07	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Chlorobenzene	1	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Chlorodibromomethane	0.4	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Chloroethane	NE	<5.000	<1.000	<0.010	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
Chloroform	0.3	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Chloromethane	NE	<5.000	<1.000	<0.010	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
1,1,-Dichloroethane	23	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.02	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
1,1,-Dichloroethene	0.06	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
cis,1-2-Dichloroethene	0.4	38.2	11.6	0.0033	0.0032	0.182	<0.100	<0.005	<0.005	<0.005
trans,1-2-Dichloroethene	0.7	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.03	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
cis,1-3-Dichloropropene	0.004	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
trans,1,3-Dichloropropene		<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Ethyl benzene	13	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
2-Hexanone	NE	<5.000	<1.000	<0.010	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
4-Methyl-2-pentanone	NE	<5.000	<1.000	<0.010	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
Methylene chloride	0.02	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Styrene	4	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Tetrachloroethene	0.06	18	14.7	<0.005	<0.005	0.394	0.408	<0.005	<0.005	<0.005
Toluene	12	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	2	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.02	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005
Trichloroethene	0.06	765	2,220	0.0107	0.0686	16.8	34.9	0.0186	0.0198	0.0048
Vinyl acetate	170	<5.000	<1.000	<0.010	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
Vinyl chloride	0.01	<5.000	<1.000	<0.010	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010
Xylenes (total)	150	<5.000	<1.000	<0.005	<0.005	<0.100	<0.100	<0.005	<0.005	<0.005

NOTES: * = Most conservative soil remediation objective established in 35 IAC 742.Appendix B.Table A.
NE = Not Established
Values expressed in milligrams per kilogram (mg/kg) or parts per million (ppm).

TABLE 2.1-5
Geotechnical Analyses
Soils in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	SAMPLE LOCATION AND DEPTH (bgs)						
	CSB-1203			CSB-1204			
	43 ft	46 ft	53 ft	5 ft	25 ft	33 ft	46 ft
Non-Carbonate Organic Carbon (%)	0.1805	0.9225	0.669	0.7725	0.8055	0.376	0.283
Grain Size (USCS)	Sandy Gravel, Little Silt, **GP-GM**	Silty Clay, Trace Sand, Trace Gravel, **CL**	Silty Clay, Trace Sand, **CL**	Silty Clay, Some Sand, Trace Gravel, **CL**	Silty Clay, Little Sand, Trace Gravel, **CL**	Sand, Some Gravel, Little Silt, **SW-SM**	Sandy Gravel, Trace Silt, Trace Clay, **GW-GM**
Moisture Content (%)	NA	18.3	17.9	27.8	21.4	NA	NA
Specific Gravity	2.70	2.75	2.75	2.75	2.75	2.70	2.70
Bulk Density (pounds/ft^3)	NA	132.3	132.8	121.4	128.8	NA	NA

TABLE 2.1-5
Geotechnical Analyses
Soils in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	SAMPLE LOCATION AND DEPTH (bgs)						
	CSB-1204				CSB-1205		
	50 ft	54 ft	56 ft	70 ft	5 ft	26 ft	32 ft
Non-Carbonate Organic Carbon (%)	0.872	0.8825	0.243	0.0979	0.544	0.812	0.268
Grain Size (USCS)	Silty Clay, Trace Sand, Trace Gravel, **CL**	Silty Clay, Trace Sand, **CL**	Silty Clay, Some Sand, Trace Gravel, **CL**	Silty Clay, Some Sand, Trace Gravel, **CL**	Silty Clay, Some Sand, Trace Gravel, **CL**	Silty Clay, Little Sand, Trace Gravel, **CL**	Sand, Some Gravel, Little Silt, **SP-SM**
Moisture Content (%)	21.7	22.8	11.4	15.3	22.0	22.6	NA
Specific Gravity	2.75	2.75	2.79	2.79	2.79	2.75	2.70
Bulk Density (pounds/ft^3)	129.0	126.5	143.8	137.5	125.2	127.0	NA

TABLE 2.1-5
Geotechnical Analyses
Soils in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	SAMPLE LOCATION AND DEPTH (bgs)						
	CSB-1205					CSB-1206	
	45 ft	49 ft	54 ft	60 ft	73 ft	3 ft	33 ft
Non-Carbonate Organic Carbon (%)	0.2635	0.5115	0.8635	0.1835	0.0772	0.5505	0.8435
Grain Size (USCS)	Gravelly Sand, Little Silt, **SW-SM**	Silty Clay, Some Sand, **CL**	Silty Clay, Trace Sand, **CL**	Silty Clay, Some Sand, Little Gravel, **CL**	Sand, Little Silt, **SP-SM**	Silty Clay, Little Sand, Trace Gravel, **CL**	Silty Clay, Little Sand, Trace Gravel, **CL**
Moisture Content (%)	NA	14.3	20.8	8.6	NA	20.0	22.5
Specific Gravity	2.70	2.79	2.75	2.79	2.70	2.75	2.75
Bulk Density (pounds/ft^3)	NA	139.1	128.5	149.6	NA	129.8	127.3

TABLE 2.1-5
Geotechnical Analyses
Soils in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	SAMPLE LOCATION AND DEPTH (bgs)						
	CSB-1206						
	36 ft	47 ft	49 ft	53 ft	56 ft	59 ft	75 ft
Non-Carbonate Organic Carbon (%)	0.2545	0.212	0.6325	0.825	0.688	0.172	0.0854
Grain Size (USCS)	Gravelly Sand, Little Silt, **SW-SM**	Sand, Trace Gravel, Some Silt, **SM**	Silty Clay, Trace Sand, **CL**	Silty Clay, Trace Sand, **CL**	Silty Clay, Trace Sand, **CL**	Silty Clay, Some Sand, Trace Gravel, **CL**	Clayey Sand, Trace Gravel, **SC**
Moisture Content (%)	NA	NA	18.1	19.1	22.9	10.5	16.1
Specific Gravity	2.70	2.70	2.75	2.75	2.75	2.79	2.78
Bulk Density (pounds/ft^3)	NA	NA	132.8	131.6	127.3	145.8	126.7

TABLE 2.1-5
Geotechnical Analyses
Soils in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	SAMPLE LOCATION AND DEPTH (bgs)						
	CSB-1207						
	3 ft	33 ft	36 ft	47 ft	51 ft	64 ft	67 ft
Non-Carbonate Organic Carbon (%)	0.472	0.827	0.143	0.27	0.84	0.22	0.06
Grain Size (USCS)	Silty Clay, Some Sand, Trace Gravel, **CL**	Silty Clay, Little Sand, Trace Gravel, **CL**	Gravel, Some Sand, Little Silt, **GW-GM**	Sand, Little Gravel, Some Silt, **SM**	Silty Clay, Trace Sand, **CL**	Silty Clay, Some Sand, Trace Gravel, **CL**	Silty Sand, Trace Clay, **SM**
Moisture Content (%)	18.3	17.3	NA	NA	19.0	15.0	15.3
Specific Gravity	2.79	2.79	2.70	2.70	2.75	2.79	2.78
Bulk Density (pounds/ft^3)	133.3	134.8	NA	NA	130.9	137.8	134.3

TABLE 2.1-5
Geotechnical Analyses
Soils in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	SAMPLE LOCATION AND DEPTH (bgs)						
	CSB-1207	CSB-1208					
	75 ft	5 ft	28 ft	32 ft	44 ft	47 ft	52 ft
Non-Carbonate Organic Carbon (%)	0.10	0.89	0.82	0.35	0.27	0.57	0.89
Grain Size (USCS)	Clayey Sand, **SM**	Silty Clay, Little Sand, Trace Gravel, **CL**	Silty Clay, Little Sand, Trace Gravel, **CL**	Sandy Gravel, Little Silt, **GW-GM**	Sand, Some Gravel, Trace Silt, **SP**	Silty Clay, Some Sand, Some Gravel, **CL**	Silty Clay, Trace Sand, **CL**
Moisture Content (%)	17.1	24.5	18.9	NA	NA	17.9	22.4
Specific Gravity	2.78	2.75	2.75	2.70	2.70	2.78	2.75
Bulk Density (pounds/ft^3)	129.1	124.2	131.2	NA	NA	130.9	127.0

TABLE 2.1-5
Geotechnical Analyses
Soils in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	SAMPLE LOCATION AND DEPTH (bgs)						
	CSB-1208		CSB-1209				
	57 ft	71 ft	3 ft	29 ft	33 ft	44 ft	46 ft
Non-Carbonate Organic Carbon (%)	0.17	0.21	0.28	0.81	0.32	0.32	0.86
Grain Size (USCS)	Clayey Sand, Some Gravel, **SC**	Silty Clay, Little Sand, Trace Gravel, **CL**	Silty Clay, Little Sand, Little Gravel, **CL**	Silty Clay, Little Sand, Trace Gravel, **CL**	Sand, Some Gravel, Little Silt, **SP-SM**	Gravelly Sand, Little Silt, **SW-SM**	Silty Clay, Trace Sand, **CL**
Moisture Content (%)	10.9	13.4	19.7	21.8	NA	NA	21.0
Specific Gravity	2.78	2.79	2.79	2.75	2.70	2.70	2.75
Bulk Density (pounds/ft^3)	144.8	140.4	127.7	128.4	NA	NA	129.0

TABLE 2.1-5
Geotechnical Analyses
Soils in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	SAMPLE LOCATION AND DEPTH (bgs)						
	CSB-1209			CSB-1210			
	52 ft	57 ft	70 ft	3 ft	28 ft	31 ft	45 ft
Non-Carbonate Organic Carbon (%)	0.84	0.23	0.08	0.48	0.83	0.24	0.31
Grain Size (USCS)	Silty Clay, Trace Sand, **CL**	Silty Clay, Some Sand, Little Gravel, **CL**	Silt and Sand, **ML**	Silty Clay, Little Sand, Trace Gravel, **CL**	Silty Clay, Some Sand, Trace Gravel, **CL**	Sand, Some Gravel, Some Silt, **SM**	Sand, Some Gravel, Little Silt, **SP-SM**
Moisture Content (%)	21.9	13.9	17.5	18.3	16.5	NA	NA
Specific Gravity	2.75	2.79	2.79	2.79	2.79	2.70	2.70
Bulk Density (pounds/ft^3)	127.8	139.6	128.0	132.8	136.4	NA	NA

TABLE 2.1-5
Geotechnical Analyses
Soils in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	SAMPLE LOCATION AND DEPTH (bgs)						
	CSB-1210				MW-1108S		
	46 ft	54 ft	57 ft	69 ft	4 ft	32 ft	35 ft
Non-Carbonate Organic Carbon (%)	0.85	0.91	0.45	0.09	0.57	0.82	0.10
Grain Size (USCS)	Silty Clay, Trace Sand, Trace Gravel, **CL**	Silty Clay, Trace Sand, **CL**	Silty Clay, Some Sand, Little Gravel, **CL**	Sand, Some Silt, **SC**	Silty Clay, Little Sand, Trace Gravel, **CL**	Silty Clay, Some Sand, Trace Gravel, **CL**	Sand, Little Gravel, Some Silt, **SM**
Moisture Content (%)	20.7	20.5	12.0	NA	22.7	17.0	NA
Specific Gravity	2.75	2.75	2.79	2.70	2.75	2.79	2.70
Bulk Density (pounds/ft^3)	129.2	129.5	143.0	NA	126.9	134.8	NA

TABLE 2.1-5
Geotechnical Analyses
Soils in the Immediate Vicinity of the TCE Fill Pipe

The Lockformer Company / Lisle, Illinois

COMPOUNDS	SAMPLE LOCATION AND DEPTH (bgs)				
	MW-1108S				
	45 ft	49 ft	55 ft	75 ft	60 ft
Non-Carbonate Organic Carbon (%)	0.33	0.74	0.93	0.13	0.23
Grain Size (USCS)	Sandy Gravel, Little Silt, **GP-GM**	Silty Clay, Trace Sand, **CL**	Silty Clay, Trace Sand, **CL**	Sand, Trace Silt, **SP**	Silty Clay, Some Sand, Some Gravel, **CL**
Moisture Content (%)	NA	19.3	18.9	NA	12.5
Specific Gravity	2.70	2.75	2.75	2.70	2.78
Bulk Density (pounds/ft^3)	NA	131.2	130.2	NA	142.2

TABLE 2.1-6
Sample Results from Monitoring Wells
Completed in the Glacial Sediments During the Lockformer Groundwater Investigation

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO Tier 1 Groundwater Remediation Objectives		SAMPLE LOCATION											
	Class I	Class II	MW-101	MW-120	MW-123	MW-126	MW-401	MW-402	MW-500D	MW-501D	MW-502S	MW-504D	MW-508D	MW-513D
Acetone	0.7	0.7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.00002	0.00002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.0002	0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon Tetrachloride	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.14	0.14	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	0.4950	0.0253	<0.005	<0.005	<0.005	<0.005	0.0062	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.005	0.025	0.0222	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene	NE	NE	0.0287	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,2-Dichloroethene	0.007	0.2	20.900	0.0421	<0.005	<0.005	<0.005	0.4000	3.400	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,2-Dichloroethene	0.1	0.5	0.3710	<0.005	<0.005	<0.005	<0.005	0.0233	0.0734	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	0.0132	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1.0	2.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	0.2	1	2.470	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	NE	NE	0.0263	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.005	0.025	38.800	<0.005	0.0063	<0.005	<0.005	0.0097	1.690	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Acetate	7	7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	0.0414	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (Total)	10	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: All results reported in milligrams per liter (mg/L) or parts per million (ppm).
NE = Not Established
* = 35 IAC 742. Appendix B, Table E

TABLE 2.1-6
Sample Results from Monitoring Wells
Completed in the Glacial Sediments During the Lockformer Groundwater Investigation

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO Tier 1 Groundwater Remediation Objectives		SAMPLE LOCATION											
	Class I	Class II	MW-514D	MW-515D	MW-515D *Duplicate 2*	MW-516D	MW-516D *Duplicate 3*	MW-517D	MW-521	MW-522	MW-1100S	MW-1101S	MW-1102S	MW-1102S *Duplicate 1*
Acetone	0.7	0.7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.00002	0.00002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.0002	0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon Tetrachloride	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.14	0.14	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,2-Dichloroethene	0.007	0.2	<0.005	0.4560	0.4290	0.2310	0.2330	0.3460	<0.005	0.0570	<0.005	<0.005	<0.005	<0.005
Trans-1,2-Dichloroethene	0.1	0.5	<0.005	0.0144	0.1430	0.0058	0.0061	0.0117	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1.0	2.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	0.2	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.005	0.025	<0.005	<0.005	<0.005	0.2390	0.2480	0.0223	0.0094	0.2730	<0.005	<0.005	0.0149	0.0152
Vinyl Acetate	7	7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (Total)	10	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: All results reported in milligrams per liter (mg/L) or parts per million (ppm).
NE = Not Established
* = 35 IAC 742. Appendix B, Table E

TABLE 2.1-6
Sample Results from Monitoring Wells
Completed in the Glacial Sediments During the Lockformer Groundwater Investigation

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO Tier 1 Groundwater Remediation Objectives		SAMPLE LOCATION											
	Class I	Class II	MW-1103S	MW-1103M	MW-1104S	MW-1108S	MW-1109	MW-1110S	MW-1111S	MW-1112S	MW-1113S	MW-1113M	MW-1113M *Duplicate 4*	MW-1114S
Acetone	0.7	0.7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.00002	0.00002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.0002	0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon Tetrachloride	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.14	0.14	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,2-Dichloroethene	0.007	0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,2-Dichloroethene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1.0	2.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0084
1,1,1-Trichloroethane	0.2	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	0.0092	<0.005	<0.005	<0.005	0.379	<0.005	<0.005	<0.005
Vinyl Acetate	7	7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (Total)	10	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: All results reported in milligrams per liter (mg/L) or parts per million (ppm).
NE = Not Established
* = 35 IAC 742, Appendix B, Table E

TABLE 2.1-6
Sample Results from Monitoring Wells
Completed in the Glacial Sediments During the Lockformer Groundwater Investigation

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO Tier 1 Groundwater Remediation Objectives		SAMPLE LOCATION					
	Class I	Class II	MW-1115	MW-1116	MW-1600S	MW-1601S	MW-1602S	MW-1602S *Duplicate 6*
Acetone	0.7	0.7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.00002	0.00002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.0002	0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon Tetrachloride	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.14	0.14	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,2-Dichloroethene	0.007	0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,2-Dichloroethene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.005	0.025	<0.005	<0.005	<0.005	0.0061	<0.005	<0.005
Toluene	1.0	2.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	0.2	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.005	0.025	0.0913	0.0217	<0.005	<0.005	<0.005	<0.005
Vinyl Acetate	7	7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Xylenes (Total)	10	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: All results reported in milligrams per liter (mg/L) or parts per million (ppm).
NE = Not Established
* = 35 IAC 742. Appendix B, Table E

TABLE 2.1-7
Sample Results
Single Packer Tests Performed During Drilling of the Bedrock Monitoring Wells

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 GROUNDWATER REMEDIATION OBJECTIVES		SAMPLE LOCATION AND DEPTH (bgs)									
			MW-1100D		MW-1101D			MW-1102D				
	Class I	Class II	PT-1 66.0-71.0 FT	PT-2 67.0-74.0 FT	PT-1 74.3-81.3 FT	PT-2 84.4-91.4 FT	PT-3 89.4-96.4 FT	PT-1 80.0-87.0 FT	PT-2 90.0-97.0 FT	PT-3 100.0-107.0 FT	PT-4 109.0-116.0 FT	DUP-1/PT-4 109.0-116.0 FT
Acetone	0.7	0.7	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.025	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromodichloromethane	0.00002	0.00002	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromoform	0.0002	0.0002	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromomethane	NE	NE	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Carbon Tetrachloride	0.005	0.025	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chlorobenzene	0.1	0.5	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chlorodibromomethane	0.14	0.14	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloroethane	NE	NE	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloromethane	NE	NE	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,2-Dichloroethane	0.005	0.025	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,1-Dichloroethene	NE	NE	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cis-1,2-Dichloroethene	0.007	0.2	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Trans-1,2-Dichloroethene	0.1	0.5	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,2-Dichloropropane	0.005	0.025	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cis-1,3-Dichloropropane	0.001	0.005	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Trans-1,3-Dichloropropane	0.001	0.005	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	0.7	1.0	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
2-Hexanone	NE	NE	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Styrene	0.1	0.5	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,1,2,2-Tetrachloroethane	NE	NE	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tetrachloroethene	0.005	0.025	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Toluene	1.0	2.5	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,1,1-Trichloroethane	0.2	1	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,1,2-Trichloroethane	NE	NE	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Trichloroethene	0.005	0.025	0.0011	0.0010	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Vinyl Acetate	7	7	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (Total)	10	10	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

NOTES: All results reported in milligrams per liter (mg/L) or parts per million (ppm).
NE = Not Established
NS = Not Sampled due to dry conditions.
* = 35 IAC 742.Appendix B, Table E.

TABLE 2.1-7
Sample Results
Single Packer Tests Performed During Drilling of the Bedrock Monitoring Wells

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 GROUNDWATER REMEDIATION OBJECTIVES		SAMPLE LOCATION AND DEPTH (bgs)									
			MW-1102D				MW-1103D					
	Class I	Class II	PT-5 120.0-127.0 FT	PT-6 130.0-137.0 FT	PT-7 139.0-146.0 FT	PT-8 150.0-157 FT	PT-1 74.0-81.5 FT	PT-2 84.5-91.5 FT	PT-3 94.5-101.5 FT	PT-4 104.5-111.5 FT	PT-5 114.5-121.5 FT	PT-6 124.5-131.5 FT
Acetone	0.7	0.7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromodichloromethane	0.00002	0.00002	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromoform	0.0002	0.0002	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromomethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Carbon Tetrachloride	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chlorobenzene	0.1	0.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chlorodibromomethane	0.14	0.14	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloroethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloromethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,2-Dichloroethane	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,1-Dichloroethene	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cis-1,2-Dichloroethene	0.007	0.2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Trans-1,2-Dichloroethene	0.1	0.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,2-Dichloropropane	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cis-1,3-Dichloropropane	0.001	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Trans-1,3-Dichloropropane	0.001	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	0.7	1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
2-Hexanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Styrene	0.1	0.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,1,2,2-Tetrachloroethane	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tetrachloroethene	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Toluene	1.0	2.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,1,1-Trichloroethane	0.2	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,1,2-Trichloroethane	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Trichloroethene	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Vinyl Acetate	7	7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (Total)	10	10	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

NOTES: All results reported in milligrams per liter (mg/L) or parts per million (ppm).
NE = Not Established
NS = Not Sampled due to dry conditions.
* = 35 IAC 742.Appendix B, Table E.

TABLE 2.1-7
Sample Results
Single Packer Tests Performed During Drilling of the Bedrock Monitoring Wells

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 GROUNDWATER REMEDIATION OBJECTIVES		SAMPLE LOCATION AND DEPTH (bgs)									
			MW-1103D				MW-1104D			MW-1105D		
	Class I	Class II	DUP-2/PT-6 124.5-131.5 FT	PT-7 134.5-141.5 FT	PT-8 144.5-151.5 FT	PT-9 147.0-154.0 FT	PT-1 74.5-81.5 FT	PT-2 84.5-91.5 FT	PT-3 92.0-99.5 FT	PT-1 80.0-88.0 FT	PT-2 92.0-99.0 FT	PT-3 97.0-104.0 FT
Acetone	0.7	0.7	<0.010	<0.010	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010
Benzene	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Bromodichloromethane	0.00002	0.00002	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Bromoform	0.0002	0.0002	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Bromomethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Carbon Tetrachloride	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Chlorobenzene	0.1	0.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Chlorodibromomethane	0.14	0.14	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Chloroethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Chloromethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
1,2-Dichloroethane	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
1,1-Dichloroethene	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Cis-1,2-Dichloroethene	0.007	0.2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Trans-1,2-Dichloroethene	0.1	0.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
1,2-Dichloropropane	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Cis-1,3-Dichloropropane	0.001	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Trans-1,3-Dichloropropane	0.001	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Ethylbenzene	0.7	1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
2-Hexanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Styrene	0.1	0.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
1,1,2,2-Tetrachloroethane	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Tetrachloroethene	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Toluene	1.0	2.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
1,1,1-Trichloroethane	0.2	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
1,1,2-Trichloroethane	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Trichloroethene	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050
Vinyl Acetate	7	7	<0.010	<0.010	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	NS	NS	<0.010	<0.010	<0.010
Xylenes (Total)	10	10	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NS	NS	<0.0050	<0.0050	<0.0050

NOTES: All results reported in milligrams per liter (mg/L) or parts per million (ppm).
NE = Not Established
NS = Not Sampled due to dry conditions.
* = 35 IAC 742.Appendix B, Table E.

TABLE 2.1-7
Sample Results
Single Packer Tests Performed During Drilling of the Bedrock Monitoring Wells

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO TIER 1 GROUNDWATER REMEDIATION OBJECTIVES		SAMPLE LOCATION AND DEPTH (bgs)								
	Class I	Class II	MW-1108D PT-1 86.0-96.0 FT	MW-1110D PT-1 56.0-66.0 FT	MW-1111D PT-1 56.0-66.0 FT	MW-1112D PT-1 55.5-66.0 FT	MW-1113D PT-1 66.0-76.0 FT	MW-1114D PT-1 77.0-82.0 FT	MW-1600D PT-1 102.0-112.0 FT	MW-1601D PT-1 84.0-92.0 FT	MW-1602D PT-1 67.0-77.0 FT
Acetone	0.7	0.7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromodichloromethane	0.00002	0.00002	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromoform	0.0002	0.0002	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromomethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Carbon Tetrachloride	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chlorobenzene	0.1	0.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chlorodibromomethane	0.14	0.14	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloroethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloromethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,2-Dichloroethane	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,1-Dichloroethene	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cis-1,2-Dichloroethene	0.007	0.2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Trans-1,2-Dichloroethene	0.1	0.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,2-Dichloropropane	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cis-1,3-Dichloropropane	0.001	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Trans-1,3-Dichloropropane	0.001	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	0.7	1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
2-Hexanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Styrene	0.1	0.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,1,2,2-Tetrachloroethane	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tetrachloroethene	0.005	0.025	<0.0050	0.007	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Toluene	1.0	2.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,1,1-Trichloroethane	0.2	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,1,2-Trichloroethane	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Trichloroethene	0.005	0.025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Vinyl Acetate	7	7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (Total)	10	10	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

NOTES: All results reported in milligrams per liter (mg/L) or parts per million (ppm).
NE = Not Established
NS = Not Sampled due to dry conditions.
* = 35 IAC 742.Appendix B, Table E.

TABLE 2.1-8
Sample Results
Double Packer Tests Performed on the Bedrock Monitoring Wells

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO Tier 1 Groundwater Remediation Objectives		SAMPLE LOCATION										
	Class I	Class II	MW-1102D-SPT1	MW-1102D-SPT2	MW-1102D-SPT3	MW-1102D-SPT4	MW-1102D-SPT5	MW-1102D-SPT6	MW-1102D-SPT7	MW-1102D-SPT8	MW-1102D-SPT9	MW-1103D-SPT10	MW-1103D-SPT11
Acetone	0.7	0.7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.282	<0.010	<0.010
Benzene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.00002	0.00002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.0002	0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon Tetrachloride	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.14	0.14	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,2-Dichloroethene	0.007	0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,2-Dichloroethene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1.0	2.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	0.2	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Acetate	7	7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (Total)	10	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: All results reported in milligrams per liter (mg/L) or parts per million (ppm).
NE = Not Established
* = 35 IAC 742. Appendix B, Table E

TABLE 2.1-8
Sample Results
Double Packer Tests Performed on the Bedrock Monitoring Wells

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO Tier 1 Groundwater Remediation Objectives		SAMPLE LOCATION										
	Class I	Class II	MW-1103D-SPT12	MW-1103D-SPT13	MW-1103D-SPT14	MW-1103D-SPT15	MW-1103D-SPT16	MW-1103D-SPT17	MW-1103D-SPT18	MW-1100D-SPT19	MW-1101D-SPT20	MW-1101D-SPT21	MW-1101D-SPT22
Acetone	0.7	0.7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0125	<0.010	<0.010	<0.010
Benzene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.00002	0.00002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.0002	0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon Tetrachloride	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.14	0.14	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,2-Dichloroethene	0.007	0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,2-Dichloroethene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1.0	2.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	0.2	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Acetate	7	7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (Total)	10	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: All results reported in milligrams per liter (mg/L) or parts per million (ppm).
NE = Not Established
* = 35 IAC 742. Appendix B, Table E

TABLE 2.1-8
Sample Results
Double Packer Tests Performed on the Bedrock Monitoring Wells

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO Tier 1 Groundwater Remediation Objectives		SAMPLE LOCATION										
	Class I	Class II	MW-1104D-SPT23	MW-1104D-SPT24	MW-1104D-SPT25	MW-1105D-SPT26	MW-1105D-SPT27	MW-1105D-SPT28	MW-1106D-SPT29	MW-1106D-SPT30	MW-1106D-SPT31	MW-1107D-SPT32	MW-1107D-SPT33
Acetone	0.7	0.7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.600	<0.010	<0.010
Benzene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.00002	0.00002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.0002	0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon Tetrachloride	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.14	0.14	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,2-Dichloroethene	0.007	0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,2-Dichloroethene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1.0	2.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	0.2	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Acetate	7	7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (Total)	10	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: All results reported in milligrams per liter (mg/L) or parts per million (ppm).
NE = Not Established
* = 35 IAC 742. Appendix B, Table E

TABLE 2.1-8
Sample Results
Double Packer Tests Performed on the Bedrock Monitoring Wells

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO Tier 1 Groundwater Remediation Objectives		SAMPLE LOCATION										
	Class I	Class II	MW-1107D-SPT34	MW-1111D-SPT35	MW-1111D-SPT36	MW-1113D-SPT37	MW-1113D-SPT38	MW-1113D-SPT39	MW-1110D-SPT40	MW-1110D-SPT41	MW-1108D-SPT42	MW-1108D-SPT43	MW-1112D-SPT44
Acetone	0.7	0.7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.00002	0.00002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.0002	0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon Tetrachloride	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.14	0.14	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0027	0.0013	<0.005
Chloromethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,2-Dichloroethene	0.007	0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,2-Dichloroethene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1.0	2.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	0.2	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Acetate	7	7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (Total)	10	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: All results reported in milligrams per liter (mg/L) or parts per million (ppm).
NE = Not Established
* = 35 IAC 742. Appendix B, Table E

TABLE 2.1-8
Sample Results
Double Packer Tests Performed on the Bedrock Monitoring Wells

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO Tier 1 Groundwater Remediation Objectives		SAMPLE LOCATION										
	Class I	Class II	MW-1112D-SPT45	MW-1114D-SPT46	MW-1114D-SPT46 (Duplicate #5)	MW-1114D-SPT47	MW-1114D-SPT48	MW-1600D-SPT49	MW-1600D-SPT50	MW-1600D-SPT51	MW-1601D-SPT100	MW-1601D-SPT101	MW-1601D-SPT102
Acetone	0.7	0.7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.00002	0.00002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromoform	0.0002	0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon Tetrachloride	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorodibromomethane	0.14	0.14	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,2-Dichloroethene	0.007	0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,2-Dichloroethene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cis-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trans-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Hexanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Styrene	0.1	0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1.0	2.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	0.2	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.005	0.025	<0.005	0.0013	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Acetate	7	7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Xylenes (Total)	10	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

NOTES: All results reported in milligrams per liter (mg/L) or parts per million (ppm).
NE = Not Established
* = 35 IAC 742. Appendix B, Table E

TABLE 2.1-8
Sample Results
Double Packer Tests Performed on the Bedrock Monitoring Wells

The Lockformer Company / Lisle, Illinois

COMPOUNDS	* TACO Tier 1 Groundwater Remediation Objectives		SAMPLE LOCATION		
	Class I	Class II	MW-1602D-SPT52	MW-1602D-SPT53	MW-1602D-SPT54
Acetone	0.7	0.7	<0.010	<0.010	<0.010
Benzene	0.005	0.025	<0.005	<0.005	<0.005
Bromodichloromethane	0.00002	0.00002	<0.005	<0.005	<0.005
Bromoform	0.0002	0.0002	<0.005	<0.005	<0.005
Bromomethane	NE	NE	<0.010	<0.010	<0.010
2-Butanone	NE	NE	<0.010	<0.010	<0.010
Carbon Disulfide	0.7	3.5	<0.005	<0.005	<0.005
Carbon Tetrachloride	0.005	0.025	<0.005	<0.005	<0.005
Chlorobenzene	0.1	0.5	<0.005	<0.005	<0.005
Chlorodibromomethane	0.14	0.14	<0.005	<0.005	<0.005
Chloroethane	NE	NE	<0.010	<0.010	<0.010
Chloroform	0.00002	0.0001	<0.005	<0.005	<0.005
Chloromethane	NE	NE	<0.010	<0.010	<0.010
1,1-Dichloroethane	0.7	3.5	<0.005	<0.005	<0.005
1,2-Dichloroethane	0.005	0.025	<0.005	<0.005	<0.005
1,1-Dichloroethene	NE	NE	<0.005	<0.005	<0.005
Cis-1,2-Dichloroethene	0.007	0.2	<0.005	<0.005	<0.005
Trans-1,2-Dichloroethene	0.1	0.5	<0.005	<0.005	<0.005
1,2-Dichloropropane	0.005	0.025	<0.005	<0.005	<0.005
Cis-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005
Trans-1,3-Dichloropropane	0.001	0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	1.0	<0.005	<0.005	<0.005
2-Hexanone	NE	NE	<0.010	<0.010	<0.010
4-Methyl-2-Pentanone	NE	NE	<0.010	<0.010	<0.010
Methylene Chloride	0.005	0.05	<0.005	<0.005	<0.005
Styrene	0.1	0.5	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	NE	NE	<0.005	<0.005	<0.005
Tetrachloroethene	0.005	0.025	<0.005	<0.005	<0.005
Toluene	1.0	2.5	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	0.2	1	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	NE	NE	<0.005	<0.005	<0.005
Trichloroethene	0.005	0.025	<0.005	<0.005	<0.005
Vinyl Acetate	7	7	<0.010	<0.010	<0.010
Vinyl Chloride	0.002	0.01	<0.010	<0.010	<0.010
Xylenes (Total)	10	10	<0.005	<0.005	<0.005

NOTES: All results reported in mg/L.
NE = Not Established
* = 35 IAC 742. Appendix B, Table E

TABLE 2.1-9
Water Level Measurements
Groundwater Monitoring Wels, Staff Gages, and Standby Production Wells

The Lockformer Company / Lisle, Illinois

Monitoring Well ID	Top of Casing Elevation (msl)	Top of Casing Elevation (Updated)	Depth to GW (ft) Aug-98	Depth to GW (ft) Feb-99	Depth to GW (ft) Mar-99	Depth to GW (ft) Dec-99	Depth to GW (ft) Nov-00	Depth to GW (ft) Dec-00	Depth to GW (ft) 1/11/2001	Depth to GW (ft) 3/21/2001	Depth to GW (ft) 5/15/2001	Depth to GW (ft) 6/27/2001	Depth to GW (ft) 7/12/2001	Depth to GW (ft) 8/10/2001	Depth to GW (ft) 9/10/2001	Depth to GW (ft) 9/20/2001	Depth to GW (ft) 10/17/2001	Depth to GW (ft) 11/30/2001	GW Elev. Aug-98 (msl)	GW Elev. Feb-99 (msl)	GW Elev. Mar-99 (msl)	GW Elev. Dec-99 (msl)	GW Elev. Nov-00 (msl)	GW Elev. 12/19/2001 (msl)	GW Elev. 1/11/2001 (msl)	GW Elev. 3/21/2001 (msl)	GW Elev. 5/15/2001 (msl)	GW Elev. 6/27/2001 (msl)	GW Elev. 7/12/2001 (msl)	GW Elev. 8/10/2001 (msl)	GW Elev. 9/10/2001 (msl)	GW Elev. 9/20/2001 (msl)	GW Elev. 10/17/2001 (msl)	GW Elev. 11/30/2001 (msl)
BW-1	742.67	742.67						90.46	85.91	88.97	88.87	89.40	89.91	90.01	89.94	90.03	88.47	88.89						652.21	656.76	653.70	653.80	653.27	652.76	652.66	652.73	652.84	654.20	653.78
BW-2	689.16							36.40	36.65	35.10	34.91	35.52	35.91	36.06	36.02	36.01	34.37	34.98						652.76	652.51	654.06	654.25	653.64	652.76	653.10	653.14	653.15	654.79	654.18
BW-3	698.58							45.68	45.92	44.36	44.18	44.84	45.21	45.36	45.29	45.27	43.63	44.27						652.90	652.66	654.22	654.40	653.74	653.25	653.22	653.29	653.31	654.95	654.31
P-1	742.87							33.29	33.10	32.94	Abandoned	Abandoned		Abandoned		Abandoned	Abandoned							709.58	709.77	709.93								
P-2	689.25							20.88	21.09	21.20	Abandoned	Abandoned		Abandoned		Abandoned	Abandoned							668.37	668.16	668.05								
P-3	698.68							45.93	46.15	44.62	Abandoned	Abandoned		Abandoned		Abandoned	Abandoned							652.75	652.53	654.06								
MW-101	710.84		11.44	8.40	9.21	Dry	12.20	12.91	11.35	9.97	11.47	12.27		12.33		12.17	11.06	12.08	710.84	702.44	701.63		698.64	697.93	699.49	700.87	699.37	698.57		698.51		698.67	699.78	698.76
MW-104	710.12		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Abandoned	Abandoned	Abandoned		Abandoned		Abandoned	Abandoned																	
MW-105	710.90		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Abandoned	Abandoned	Abandoned		Abandoned		Abandoned	Abandoned																	
MW-120	707.84		32.8	32.65	32.98	33.10	39.34	39.54	39.66	38.52	39.41	47.76		41.72		41.79	41.01	40.95	707.84	675.19	674.86	674.74	668.50	668.30	668.18	669.32	668.43	660.08		666.12		666.05	666.83	666.89
MW-123	712.62		12.35	10.15	10.14	12.81	12.35	12.72	12.32	11.05	11.52	12.43		12.45		12.06	11.07	12.15	712.62	702.47	702.48	699.81	700.27	699.90	700.30	701.57	701.10	700.19		700.17		700.56	701.55	700.47
MW-126(B)	706.30		50.5	51.30	51.39	53.38	52.70	52.57	51.04	51.12	51.58	52.22		52.77		52.80	51.14	51.70	706.30	655.00	654.91	652.92	653.60	653.73	655.26	655.18	654.72	654.08		653.53		653.50	655.16	654.60
MW-401	707.68	707.67	50.25	50.95	50.88	51.72	51.95	52.07	52.22	51.85	51.26	51.11		51.36		51.68	51.65	51.22	0.01	656.73	656.80	655.96	655.73	655.61	655.46	655.83	656.42	656.56		656.31		655.99	656.02	656.45
MW-402	700.71	700.74	45.15	43.00	44.90	46.51	45.85	46.54	46.92	45.51	44.77	45.43		45.95		45.81	43.45	44.91	-0.03	657.71	655.81	654.20	654.86	654.17	653.79	655.20	655.94	655.31		654.79		654.93	657.29	655.83
MW-403	* 709.10		52.95	53.15	53.36	55.63	Buried	Buried	Buried	Buried	Buried	Buried		Buried		Buried	Buried		709.10	655.95	655.74	653.47												
MW-500S	703.29		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Abandoned	Abandoned	Abandoned		Abandoned		Abandoned	Abandoned																	
MW-500D	703.66			47.40	47.94	47.86	49.17	48.30	49.12	43.81	47.90	48.43		49.03		49.27	47.56	48.09		656.26	655.72	655.80	654.49	655.36	654.54	659.85	655.76	655.23		654.63		654.39	656.08	655.57
MW-501S	706.96		Dry	Dry	Dry	11.43	10.98	17.47	14.13	Abandoned	Abandoned	Abandoned		Abandoned		Abandoned	Abandoned					695.53		689.49	692.83	706.96								
MW-501D	707.34			50.50	50.55	52.11	51.92	52.15	52.33	51.31	50.87	50.93		51.38		51.76	51.28	51.11		656.84	656.79	655.23	655.42	655.19	655.01	656.03	656.47	656.41		655.96		655.58	656.06	656.23
MW-502S	712.38		12.98	11.10	10.45	8.65	5.32	5.13	5.72	5.52	4.49	8.29		6.59		5.16	5.58	3.02	712.38	701.28	661.83	703.73	707.06	707.25	706.66	706.86	707.89	704.09		705.79		707.22	706.80	709.36
MW-503S	* 712.07		Dry	Dry	Dry	18.68	Buried	Buried	Buried	Buried	Buried	Buried		Buried		Buried	Buried					693.39												
MW-504S	710.35		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry		Dry	Dry	Dry																
MW-504D	711.51			55.40	54.12	57.64	56.70	56.09	52.87	55.03	55.58	56.06		56.63		56.82	55.89	55.79		656.11	657.39	653.87	654.81	655.42	658.64	656.48	655.93	655.45		654.88		654.69	655.62	655.72
MW-505S	707.00		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry		Dry	Dry	Dry																
MW-506S	* 710.90		Dry	Dry	Dry	Dry	Dry	Not located	Not located	Not Located	Not Located	Not Located		Not Located		Not Located	Not Located																	
MW-507S	711.59		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry		Dry	Dry	Dry																
MW-508S	707.43		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry		Dry	Dry	Dry																
MW-508D	707.50			49.20	50.96	53.60	52.50	52.71	53.02	52.03	51.62	51.88		52.46		52.76	52.37	51.87		658.30	656.54	653.90	655.00	654.79	654.48	655.47	655.88	655.62		655.04		654.74	655.13	655.63
MW-513D	706.90			50.75	51.14	53.41	52.23	52.89	51.38	51.36	51.17	51.79		52.35		52.19	50.61	51.37		656.15	655.76	653.49	654.67	654.01	655.52	655.54	655.73	655.11		654.55		654.71	656.29	655.53
MW-514D	701.19			43.90	45.41	47.48	46.24	47.05	47.43	45.39	45.26	45.92		46.40		46.01	44.28	Destroyed		657.29	655.78	653.71	654.95	654.14	653.76	655.80	655.93	655.27		654.79		655.18	656.91	701.19
MW-515D	703.07			46.50	47.13	49.55	48.26	48.54	46.07	43.45	47.20	47.83		48.37		48.29	46.02	47.38		656.57	655.94	653.52	654.81	654.53	657.00	659.62	655.87	655.24		654.70		654.78	657.05	655.69
MW-516D	700.59			44.00	44.65	46.98	45.84	46.52	41.91	41.92	44.72	45.35		45.94		45.71	43.23	44.87		656.59	655.94	653.61	654.75	654.07	658.68	658.67	655.87	655.24		654.65		654.88	657.36	655.72
MW-517D	709.66			53.30	53.89	55.99	55.15	55.69	53.13	49.81	53.91	54.48		55.04		55.25	53.30	54.02		656.36	655.77	653.67	654.51	653.97	656.53	659.85	655.75	655.18		654.62		654.41	656.36	655.64
MW-518D	* 690.65					37.19	Abandoned	Abandoned	Abandoned	Abandoned	Abandoned	Abandoned		Abandoned		Abandoned	Abandoned					653.46												
MW-519D	* 693.83					40.02	Abandoned	Abandoned	Abandoned	Abandoned	Abandoned	Abandoned		Abandoned		Abandoned	Abandoned					653.81												
MW-520	701.71						47.66	48.04	48.28	46.49	Abandoned	Abandoned		Abandoned		Abandoned	Abandoned						654.05	653.67	653.43	655.22								
MW-521	709.11						52.96	55.32	53.11	53.25	53.73	54.20		54.80		55.00	54.00	53.81					656.15	653.79	656.00	655.86	655.38	654.91		654.31		654.11	655.11	655.30
MW-522	706.29						52.03	52.53	52.78	50.78	50.48	50.94		52.03		52.11	51.17	50.59					654.26	653.76	653.51	655.51	655.81	655.35		654.26		654.18	655.12	655.70
MW-1100S	690.42										34.31	35.03		35.44		34.82	32.33	34.50									656.11	655.39		654.98			655.60	658.09	655.92
MW-1100D	690.90	690.91									36.16	36.83	37.25	37.37	37.35	37.37	35.76	36.34									654.74	654.08	653.66	653.54	653.56	653.54	655.15	654.57
MW-1101S	690.82										34.71	35.43		35.87		35.20	33.10	34.91									656.11	655.39		654.95			655.62	657.72	655.91
MW-1101D	691.27	691.26									36.54	37.20	37.62	37.74	37.72	37.72	36.14	36.71									654.73	654.06	653.64	653.52	653.54	653.54	655.12	654.55
MW-1102S	700.52										45.04	45.62		46.21		46.41	44.15	45.25									655.48	654.90		654.31			654.11	656.37	655.27
MW-1102D	700.57	700.56									45.89	46.51	46.91	47.01	46.98	47.02	45.29	46.01									654.68	654.05	653.65	653.55	653.58	653.54	655.27	654.55
MW-1103S	696.85										41.52	42.06		42.62		42.78	40.78	42.23									655.33	654.79		654.23			654.07	656.07	654.62
MW-1103M	696.82										42.10	42.71		43.25		43.20	41.98	41.73									654.72	654.11		653.57			653.62	654.84	655.09
MW-1103D	697.27	697.25									42.59	43.21	43.61	43.71	43.70	43.64	41.60	42.69									654.68	654.04	653.64	653.54	653.55	653.61	655.65	654.56
MW-1104S	698.84										43.70	44.18		44.76		44.91	43.42	43.86									655.14	654.66		654.08			653.93	655.42	654.98
MW-1104D	698.85	698.83									44.01	44.63	45.04	45.16	45.11	45.10	43.41	44.14									654.84	654.20	653.79	653.67	653.72	653.73	655.42	654.69
MW-1105D	702.89	702.88									48.02	48.62	49.03	49.15	49.11	49.09	47.40	48.15									654.87	654.26	653.85	653.73	653.77	653.79	655.48	654.73
MW-1106D	718.88	718.87									63.82	64.41	64.84	64.96	64.91	64.91	63.17	53.99									655.06	654.46	654.03	653.91	653.96	653.96	655.70	664.88
MW-1107D	710.03	710.05									55.16	55.73	56.15	56.27	56.24	56.27	54.57	55.22									654.87	654.32	653.90	653.78	653.81	653.78	655.48	654.83
MW-1108S	708.25										53.50	54.09		54.67	54.65	54.67	53.01	53.59									654.75	654.16		653.58		653.58	655.24	654.66
MW-1108D		707.32															51.69	52.44														655.63	654.88
MW-1109	701.04	701.05									45.56	46.14		46.73		46.95	44.76	45.81									655.48	654.91		654.32	701.05	654.10	656.29	655.24
MW-1110S		681.90														27.87	26.08	26.93												681.90	654.03	655.82	654.97
MW-1110D		681.94													27.97	29.74	26.11	26.99												653.97	652.20	655.83	654.95
MW-1111S		680.22														26.21	24.32	25.33												680.22	654.01	655.90	654.89
MW-1111D		680.17													26.23	26.19	24.42	25.24												653.94	653.98	655.75	654.93
MW-1112S		681.32														27.14	25.99	26.04												681.32	654.18	655.33	655.28
MW-1112D		680.75													26.89	26.85	25.11	25.84												653.86	653.90	655.64	654.91
MW-1113S		692.11														38.59	36.81	37.53													653.52	655.30	654.58
MW-1113M		692.40														38.95	37.33	37.89													653.45	655.07	654.51
MW-1113D		692.11														38.65	37.03	37.60													653.46	655.08	654.51
MW-1114S		698.87														44.89	43.11	43.98													653.98	655.76	654.89
MW-1114D		699.10														45.12	43.36	44.19													653.98	655.74	654.91
MW-1115		684.23																29.89															654.34
MW-1116		682.50																28.16															654.34
MW-1600S		729.08																77.04															652.04
MW-1600D		729.09																77.18															651.91
MW-1601S		703.97																50.81															653.16
MW-1601D		703.82																51.13															652.69
MW-1602S		686.61																32.61															654.00
MW-1602D		687.05																33.37															653.68
MW-1603		698.74																44.50															654.24
MW-1604		690.29																36.14															654.15
MW-1605		689.32																35.25															654.07
SG-1	681.80									10.47	11.21	11.39	Dry	11.29	11.14	10.86	10.82	10.95						671.33	670.59	670.41		670.51	670.66	670.94	670.98	670.85
SG-2	676.50									9.51	10.06	10.18	10.23	10.09	9.99	9.78	9.57	9.67						666.99	666.44	666.32	666.27	666.41	666.51	666.72	666.93	666.83
SG-3	677.70									13.58	14.36	14.50	14.66	14.33	14.22	13.97	13.99	14.06						664.12	663.34	663.20	663.04	663.37	663.48	663.73	663.71	663.64
SG-4		680.6											16.26	16.07	15.86	14.14	14.99	15.40									664.34	664.53	664.74	666.46	665.61	665.20
SG-5		671											14.20	14.04	13.86	12.28	12.91	13.58									656.80	656.96	657.14	658.72	658.09	657.42
SG-6		668.88											16.95	16.48	16.17	13.90	14.62	15.72									651.93	652.40	652.71	654.98	654.26	653.16
Katrine Well		708.78											60.29		58.66			58.97									648.49		650.12			649.81
Finley Well		749.74											80.66		82.54			79.39									669.08		667.20			670.35
Downer Dr. Well		754.96											102.54		103.02			101.55									652.42		651.94			653.41
67th St. Well		751.09											109.74		110.23			108.90									641.35		640.86			642.19
71st St. Well		784.76											142.90		143.22			141.67									641.86		641.54			643.09
63rd St. Well		739.55													92.78			92.43											*646.77*			647.12

NOTES: Shaded cells = Not applicable
msl = mean sea level
* = Top of casing elevations were calculated using an average difference observed between Carlson's relative elevation measurements and the January 5, 2001 survey.

All top of casing elevations based on survey, unless otherwise noted.
Depth to groundwater measured from the top of the well casing.

TABLE 2.2-1
Soil Analytical Results
1500 Series Soil Borings Performed in Area 3

The Lockformer Company / Lisle, Illinois

Sample ID	Depth (bgs)	Constituents					
		1,1,1-TCA	1,1-DCE	Trans-1,2-DCE	Cis-1,2-DCE	TCE	PCE
CSB-1500	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1501	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1502	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1503	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1504	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1505	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
CSB-1506	2'-4'	<150	<50	<50	<50	<50	<50
CSB-1507	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1508	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
CSB-1509	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1510	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1511	2'-4'	<150	<50	<50	<50	<50	<50
CSB-1512	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
CSB-1513	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
CSB-1514	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
CSB-1515	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
CSB-1527	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1528	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
CSB-1529	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	331	<50
CSB-1530	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-15.5'	<150	<50	<50	<50	<50	<50

NOTES:
Results in micrograms per kilogram or parts per billion (ppb).
[ ] = indicates analysis conducted at First Environmental Laboratories, Inc.

TABLE 2.2-1
Soil Analytical Results
1500 Series Soil Borings Performed in Area 3

The Lockformer Company / Lisle, Illinois

Sample ID	Depth (bgs)	Constituents					
		1,1,1-TCA	1,1-DCE	Trans-1,2-DCE	Cis-1,2-DCE	TCE	PCE
CSB-1542	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	20'-22'	<150	<50	<50	<50	<50	<50
CSB-1543	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	20'-22'	<150	<50	<50	<50	<50	<50
CSB-1544	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1545	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1546	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1547	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1548	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
CSB-1549	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	18	<50
CSB-1550	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
CSB-1551	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	27	<50
CSB-1552	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
CSB-1553	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	20'-22'	<150	<50	<50	<50	<50	<50
CSB-1554	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	15	<50
	20'-22'	<150	<50	<50	<50	<50	<50
	26'-28'	<150	<50	<50	<50	<50	<50
CSB-1555	2'-4'	<150	<50	<50	<50	11	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	20'-22'	<150	<50	<50	<50	<50	<50
CSB-1556	2'-4'	<150	<50	<50	<50	26	<50
	8'-10'	<150	<50	<50	<50	30	<50
	14'-16'	<150	<50	<50	<50	42	<50
	20'-22'	<150	<50	<50	<50	<50	<50

NOTES:
Results in micrograms per kilogram or parts per billion (ppb).
= indicates analysis conducted at First Environmental Laboratories, Inc.

TABLE 2.2-1
Soil Analytical Results
1500 Series Soil Borings Performed in Area 3

The Lockformer Company / Lisle, Illinois

Sample ID	Depth (bgs)	Constituents					
		1,1,1-TCA	1,1-DCE	Trans-1,2-DCE	Cis-1,2-DCE	TCE	PCE
CSB-1557	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	20'-22'	<150	<50	<50	<50	42	<50
	24'-26'	<150	<50	<50	<50	<50	<50
CSB-1558	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	22'-24'	<150	<50	<50	<50	310	<50
CSB-1559	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	20'-22'	<150	<50	<50	<50	<50	<50
CSB-1560	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	20'-22'	<150	<50	<50	<50	<50	<50
CSB-1561	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	21	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	20'-22'	<150	<50	<50	<50	173	<50
CSB-1562	2'-4'	<150	<50	<50	<50	<50	<50
	10'-12'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	64	29
	16'-18	<150	<50	<50	<50	378	326
	22'-24'	<150	<50	<50	<50	1,694	927
	22'-24'	<5	<5	<5	<5	186	188
	26'-28'	<150	<50	<50	<50	1,092	404
	26'-28'	<5	<5	<5	<5	80.2	55.7
	30'-32'	<150	<50	<50	<50	551	166
CSB-1563	2'-4'	<150	<50	<50	<50	<50	<50
	6'-8'	<150	<50	<50	<50	<50	<50
CSB-1564	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	110	<50
	18'-20'	<150	<50	<50	<50	279	<50
	20'-22	<150	<50	<50	<50	16	<50
	22'-24'	<150	<50	<50	<50	758	58
	24'-26'	<150	<50	<50	<50	41	<50
	26'-28'	<150	<50	<50	<50	445	43
	28'-30'	<150	<50	<50	<50	124	<50
CSB-1565	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	18'-20'	<150	<50	<50	<50	418	81
	22'-24	<150	<50	<50	<50	139	31

NOTES:
Results in micrograms per kilogram or parts per billion (ppb).
= indicates analysis conducted at First Environmental Laboratories, Inc.

TABLE 2.2-1
Soil Analytical Results
1500 Series Soil Borings Performed in Area 3

The Lockformer Company / Lisle, Illinois

Sample ID	Depth (bgs)	Constituents					
		1,1,1-TCA	1,1-DCE	Trans-1,2-DCE	Cis-1,2-DCE	TCE	PCE
CSB-1566	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	18'-20'	<150	<50	<50	<50	466	90
	20'-22'	<150	<50	<50	<50	<50	<50
	22'-24'	<150	<50	<50	<50	58	<50
CSB-1567	6'-8'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	16'-18'	<150	<50	<50	<50	86	<50
	18'-20'	<150	<50	<50	<50	<50	<50
	20'-22'	<150	<50	<50	<50	<50	<50
	22'-24'	<150	<50	<50	<50	<50	<50
CSB-1568	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	20'-22'	<150	<50	<50	<50	73	<50
CSB-1569	6'-8'	<150	<50	<50	<50	<50	<50
	10'-12'	<150	<50	<50	<50	<50	<50
	16'-18'	<150	<50	<50	<50	269	<50
	20'-22'	<150	<50	<50	<50	<50	<50
	22'-24	<150	<50	<50	<50	<50	<50
CSB-1570	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	20'-22'	<150	<50	<50	<50	18	<50
	22'-24'	<150	<50	<50	<50	34	<50
CSB-1571	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	20'-22'	<150	<50	<50	<50	<50	<50
	20'-22'	<5	<5	<5	<5	<5	<5
	22'-24'	<150	<50	<50	<50	<50	<50
	22'-24'	<5	<5	<5	<5	<5	<5
CSB-1572	2'-4'	<150	<50	<50	<50	<50	<50
	8'-10'	<150	<50	<50	<50	<50	<50
	14'-16'	<150	<50	<50	<50	<50	<50
	20'-22'	<150	<50	<50	<50	159	<50
	20'-22'	<5	<5	<5	<5	66.8	<5
	26'-28'	<150	<50	<50	<50	<50	<50
	26'-28'	<5	<5	<5	<5	<5	<5
CSB-1573	14'-16'	<5	<5	<5	<5	8	<5
	18'-20'	<5	<5	<5	<5	12.3	<5
	20'-22'	<5	<5	<5	<5	13.8	<5
	22'-24'	<5	<5	<5	<5	15.2	<5

NOTES:
Results in micrograms per kilogram or parts per billion (ppb).
[ ] = indicates analysis conducted at First Environmental Laboratories, Inc.

TABLE 2.2-2
Groundwater Analytical Results
Area 3

The Lockformer Company / Lisle, Illinois

Sample ID	Relative Depth	Constituents					
		1,1,1-TCA	1,1-DCE	Trans-1,2-DCE	Cis-1,2-DCE	TCE	PCE
CSB-1548	Shallow	<3	<1	<1	<1	18	<1
CSB-1549	Shallow	<3	<1	<1	<1	8	<1
CSB-1550	Shallow	<3	<1	<1	<1	23	<1
CSB-1551	Shallow	<3	<1	<1	<1	3	<1
CSB-1552	Shallow	<3	<1	<1	<1	12	<1
CSB-1553	Deep	<3	<1	<1	<1	42	<1
CSB-1554	Deep	<3	<1	<1	<1	19	<1
CSB-1555	Deep	<3	<1	<1	<1	4	<1
CSB-1556	Deep	<3	<1	<1	<1	13	2
CSB-1557	Deep	<3	<1	<1	<1	53	6
CSB-1558	Deep	<3	<1	<1	<1	9	<1
CSB-1559	Deep	<3	<1	<1	<1	18	<1
CSB-1560	Deep	<3	<1	<1	<1	11	<1
CSB-1561	Deep	<3	<1	<1	<1	20	<1
CSB-1562	Deep	<3	<1	<1	2	122	14
CSB-1562	Deep	<5	<5	<5	<5	232	24.4
CSB-1564	Deep	<3	<1	<1	4	161	3
CSB-1565	Deep	<3	<1	<1	4	140	4
CSB-1566	Deep	<3	<1	<1	4	123	5
CSB-1567	Deep	<3	<1	<1	4	116	2
CSB-1568	Deep	<3	<1	<1	1	50	1
CSB-1569	Deep	<3	<1	<1	<1	27	1
CSB-1570	Deep	<3	<1	<1	<1	32	1
CSB-1573	Deep	<5	<5	<5	<5	30.5	<5

NOTES:

Results in micrograms per liter or parts per billion (ppb).
Shallow = Approximately 10 to 12 feet below ground surface (bgs)
Deep = Approximately 24 to 28 feet bgs
= indicates analysis conducted at First Environmental Laboratories, Inc.

SECTION 3

3.0 REMEDIAL OBJECTIVES

Trichloroethene (TCE) concentrations in the soil and groundwater at the Lockformer site are significantly higher than other constituents at the site, including tetrachloroethene (PCE) and cis-1,2-dichloroethene (cis-1,2-DCE). A review of cleanup standards indicates that TCE has consistently lower cleanup criteria applied to it when compared to PCE and cis-1,2-DCE. As a result, it is reasonable to base the site ROs on the cleanup values for TCE.

3.1 SURFICIAL SILTY CLAY GLACIAL TILL AND FILL

The applicable, relevant and appropriate removal action cleanup standard for TCE contamination in the surficial silty clay till and fill that occurs from surface grade to approximately 30 feet in depth in Areas 1 and 2 will be 8.9 mg/kg. This is based on the IEPA Tiered Approach to Corrective Action (TACO) value for the industrial-commercial inhalation route of exposure to these soils.

Upon achieving the removal action cleanup standard in the surficial silty clay till and fill, an evaluation of the subject area will be conducted to assess the need for additional remediation.

3.2 MASS WASTE SAND AND GRAVEL

The applicable, relevant and appropriate cleanup standard for TCE contamination in the mass waste sand and gravel that occurs from approximately 30 to 45 feet in depth in Areas 1 and 2 will be 0.060 mg/kg. This is based on the IEPA TACO value for the Soil Component of the Groundwater Ingestion Exposure Route for Class I groundwater.

4.0 FIELD SAMPLING PLAN

This Field Sampling Plan (FSP) addresses field procedures to be implemented by Clayton Group Services, Inc. (Clayton) and its subcontractors during the additional investigations at the Lockformer site. This FSP has been prepared in accordance with the Order, appropriate guidance documents, and good engineering practices.

The purpose of the investigation is to collect data to further evaluate the presence of VOCs at the site. The field activities performed during the evaluation will consist of:

1. Additional soil sampling in Area 1 of the site;
2. Additional soil sampling in Area 2 of the site;
3. Additional soil and groundwater investigations in Area 3 of the site; and
4. Additional surface soil sampling from select drainage ways at the site, including the northeast loading dock of the site building.

This data will be used to define the areas within Areas 1 and 2 that will require remediation by Electrical Resistive Heating (ERH) and to develop a remedial strategy for Area 3.

The need for changes in the investigation activities may be identified upon completion of tasks during the investigation. If needs for additional or modified investigations are identified, revisions to this FSP will be prepared in the form of technical memorandum(s) to address the performance of the additional activities. The additional or modified investigations that are the subject of the technical memorandum(s) will be approved in writing by the USEPA On-Scene Coordinator (OSC) prior to implementation.

4.1 ADDITIONAL SOIL SAMPLING IN AREA 1

Section 2.1 identifies the current delineation of VOCs in the former TCE fill area of Area 1. Additional soil sampling will be conducted in the surficial silty clay glacial till and fill in the vicinity of the former TCE fill pipe to further define the extent of VOC concentrations that exceed the remediation objectives (ROs) established in Section 3.1. The additional delineation data will assist in the efficient implementation of the remedial technology discussed in Section 5.0.

4.1.1 Area 1 Soil Borings

Soil boring locations for Area 1 will be performed using the sampling grid layout illustrated in Figure 4.1-1. The sampling grid illustrated will take place on 25-foot centers.

Soil borings will be advanced using direct-push sampling methods to collect soil samples. Soil samples will be collected continuously using a 2-inch-diameter, 4-foot-long steel sampling tube and polyvinyl chloride (PVC) inner sleeve to the boring completion depth. Each sample interval will be described and logged by a Clayton geologist according to the Unified Soil Classification System (USCS). Upon acquisition, a portion of each sample will undergo headspace screening to determine the presence of organic vapors using a photoionization detector (PID). Details regarding headspace analysis are provided in Standard Operating Procedure (SOP) No. 330 in Appendix B. Samples will be chosen for potential laboratory analysis based on the highest headspace concentration identified within each 10-foot section of the soil boring. The soil sample exhibiting the most elevated headspace reading from each 10-foot section will be selected for laboratory analysis. If the laboratory analytical results for the selected samples identify VOC concentrations exceeding ROs, additional samples may be selected for analysis. Laboratory analysis will be conducted by First Environmental Laboratories, Inc. of

Naperville, Illinois. Soil borings will continue in the grid pattern fashion until concentrations below the ROs have been identified. If the ROs are exceeded on the outside perimeter of the grid, additional sampling will take place on 25-foot centers expanding the grid until the area of soils exceeding the ROs is defined.

4.2 ADDITIONAL SOIL SAMPLING IN AREA 2

The data summary provided in Section 2.1 identifies the current delineation of VOCs in Area 2 of the site. Additional soil sampling will be conducted in the surficial silty clay till and fill of Area 2 to further define the extent of VOC concentrations that exceed the ROs established in Section 3.1. The refined delineation data will assist in the efficient implementation of the remedial technology discussed in Section 5.0.

4.2.1 Area 2 Soil Borings

Soil boring locations for Area 2 will be determined using the sampling grid illustrated in Figure 4.1-1. The grid sampling illustrated will take place on 25-foot centers. Soil borings will be advanced, sampled, and analyzed in a manner similar to that discussed in Section 4.1.1. Soil borings will continue in the grid pattern fashion until concentrations below the ROs have been identified.

4.3 ADDITIONAL SOIL AND GROUNDWATER INVESTIGATIONS IN AREA 3

A review of the data summary provided in Section 2.0 identifies the presence of VOCs in both the soil and groundwater in Area 3 of the site. The VOC concentrations appear to be primarily associated with the southern portion of Area 3, in the vicinity of the sanitary sewer line. Additional soil and groundwater sampling will be conducted along the sanitary sewer line extending west to further define the extent of VOC impacts.

4.3.1 Area 3 Soil Borings

Soil borings will be advanced in 50-foot intervals along the length of the Lisle sanitary sewer line extending east and west of the Lockformer property (Figure 4.3-1) provided that access to this property is acquired by USEPA. Soil and groundwater sampling will continue along the sanitary line until the soil and groundwater samples from three consecutive borings exhibit VOC concentrations below the IEPA Tiered Approach to Cleanup Objectives (TACO) value for the Soil Component of the Groundwater Ingestion Exposure Route for Class I groundwater. At each sampling location, continuous soil samples will be acquired using direct-push soil sampling techniques until saturated conditions are encountered. Upon acquisition, each sample will undergo headspace screening to determine the presence of organic vapors by PID. The sample exhibiting the highest headspace screening result from each ten foot interval will be selected for onsite analysis using a field gas chromatograph (GC). The selected samples will be preserved in accordance with Method 5035 protocols and analyzed for the presence of TCE; PCE; 1,1,1-trichloroethane (TCA); cis-1,2-DCE; and vinyl chloride (VC) using proposed Method 5021.

Once saturated conditions are encountered, a slotted steel screen will be temporarily advanced into the saturated zone via direct-push methods, and a groundwater grab sample will be collected. The sample will be collected by inserting new PVC tubing into the screen and withdrawing the tube to allow drainage into HCl-preserved 40-ml vials. The groundwater samples will be analyzed onsite via GC for the presence of TCE, PCE, TCA, cis-1,2-DCE, and VC using proposed Method 5021.

4.3.2 Area 3 Groundwater Monitoring Wells

Three groundwater monitoring well clusters will be completed along the southern perimeter of Area 3 to further evaluate the presence of VOCs in the saturated glacial

sediments. Each well cluster will consist two wells; one shallow well completed in the unconsolidated sediments at the water table, and one well completed in the glacial sediments immediately above bedrock. The well clusters will be located in the vicinity of SB-1564, MW-1115, and MW-1116 (Figure 4.3-1).

4.3.2.1 Area 3 Shallow Groundwater Monitoring Wells

Three monitoring well clusters will be installed along the southern property boundary in Area 3. One well will be completed across the water table, and the other well will be completed in the lower portion of the glacial sediments overlying the bedrock. Monitoring wells MW-1115 and MW-1116 will be employed as the upper shallow well in each of their respective well clusters. The shallow well at each location will have a 10-foot well screen positioned so that 8 feet of the screen is below the water table. The deeper glacial sediment well will be fitted with a 5-foot well screen and completed above bedrock.

The shallow wells will be installed, developed, and sampled for VOC analysis in accordance with the monitoring well procedures discussed in Section 4.6.

4.3.2.2 Area 3 Bedrock Groundwater Monitoring Wells

The drilling of bedrock wells at the southern end of Area 3 is problematic due to the terrain there and the presence of overhead electrical power lines. A review of the soil contaminant concentrations present in the vicinity of the Lisle sanitary sewer on the southern portion of Area 3 indicates that a release of separate phase DNAPL from the sewer has not taken place. It is unlikely that DNAPL has impacted groundwater in the bedrock at this location. As a result, Lockformer will install wells in the lower portion of the glacial sediments overlying bedrock and obtain groundwater samples from them prior to making a determination whether bedrock wells should be installed.

4.3.3 Area 3 Pump Test

A 72-hour pump test will be conducted in the southern portion of Area 3 to evaluate the hydrogeologic parameters in the glacial aquifer there. The determination of these aquifer parameters will be necessary to design a groundwater remediation system for Area 3. The pump test will be conducted on a 4-inch-ID PVC well that will be installed centrally, along the southern perimeter of Area 3, and completed in the glacial drift sediments. The location of the pump test well will be determined after installation and groundwater sampling is performed in the other well nests proposed along the south property boundary. The completion depth of the pump test well will also be based on the analytical results for the groundwater samples that will be collected from the well clusters to be installed on the south property boundary.

Testing will be performed prior to the 72-hour pump test to determine the maximum sustainable yield of the well and to obtain water quality analysis. Upon determining the sustainable yield of the well and expected water quality, the appropriate disposal of the pump test water can be determined. At this time, it is expected that the water generated from the pump test will be discharged to the sanitary sewer after receiving approval by the DuPage County Public Works Department.

4.4 ADDITIONAL SURFICIAL DRAINAGE WAY SAMPLING

Soil sampling will be performed along the historical drainage ways at the locations identified on Figure 4-4.1. The intent of this sampling will be to determine if any contamination has been transported away from the area of the facility building through these drainage ways. At each sampling location, continuous soil samples will be acquired to a depth of 16 feet using direct-push sampling techniques. Upon acquisition, each sample will undergo headspace screening to determine the presence of organic vapors by

PID. Those samples exhibiting headspace screening values above 5 ppb will be submitted for laboratory analysis for VOCs by EPA Method 8260B.

4.5 SAMPLE DESIGNATION

A Clayton sample numbering system will be used to identify each sample for chemical or geotechnical analysis. Each sample number will consist of five components as described below.

4.5.1 Sample Media

The sample medium will be identified by a two- or three-digit alpha code. The alpha codes are as follows:

CSB – Clayton soil boring
MW – monitoring well
TB – trip blank
RB – rinse blank

4.5.2 Sample Location

The sample location for a particular medium will be identified by a two-digit numeric code. The deep monitor wells will have a numeric code with an additional letter (D). Quality Assurance/Quality Control (QA/QC) trip blank and equipment rinse blank samples will have a three-digit sample number and will progress sequentially. The sample number for a duplicate sample will be identified by a unique two-digit numeric code.

4.5.3 Sample Interval

The sample interval for a particular soil sample will be identified by the number of feet bgs the sample is collected.

4.5.4 Sample Modifier

The sample modifier for matrix spike (MS) and matrix spike duplicate (MSD) samples will be identified by a two-digit alpha code MS.

4.5.5 Sample Identification System Examples

A number of examples have been prepared to illustrate how the sample numbering system works. Sample number examples follow below:

CSB01/2-4	Soil sample collected at 2 to 4 feet bgs at Soil Boring SB01.
MW70D	Groundwater sample collected from Deep Monitoring Well MW70D.
SS02	Water sample collected from storm sewer.
SS01MS	Water sample collected from storm sewer, matrix spike/matrix spike duplicate.
RB001	Rinse blank 001.
TB001	Trip blank 001.

4.6 SAMPLING EQUIPMENT, MATERIALS, AND PROCEDURES

4.6.1 Utility Survey

A utility survey will be completed prior to the start of the invasive site activities. Clayton will coordinate clearance of all underground utilities in the vicinity of invasive activities by contacting JULIE$_{TM}$ – the Illinois "One-Call" utility locating system in addition to any applicable non-JULIE member companies.

4.6.2 Field Indicator Parameter Instrument Calibration

4.6.2.1 Equipment and Materials

The following equipment will be required to calibrate field indicator parameter instruments:

- Photo Ionization Detector (PID) with calibration kit
- Horiba U-10 or equivalent water quality meter with calibration kit
- Field Log Book
- Calibration Log Sheets

4.6.2.2 PID Calibration and Horiba U-10 Calibration

At a minimum, calibration of the PID instrument will be performed at the start of each day and, if there is reason to suspect the meter is producing incorrect readings, as needed during the day. A commercially available gas (normally isobutylene) will be used for calibration. A 10.6 electron volt (eV) lamp will be used in the instrument during the investigation.

At a minimum, calibration of the Horiba U-10 or equivalent water quality meter will be performed at the start of each day and, if there is reason to suspect the meter is producing incorrect readings, as needed during the day. The Horiba U-10 or an equivalent water quality meter will be used to measure the pH, conductivity, temperature, and turbidity of the monitoring well groundwater during development and sampling. A SOP for instrument calibration is provided in SOP No. 930 in Appendix B.

4.6.3 Soil Boring

4.6.3.1 Equipment and Materials

The following equipment may be required during completion of the soil borings:

- Truck-Mounted Geoprobe
- Hollow-Stem Drill Rig
- Water Level Indicator
- Hand Auger
- Steam Cleaner
- Potable Water
- Distilled Water
- Alconox
- Cleaning Brushes and Buckets
- Bentonite Grout
- PID with Calibration Kit
- 55-Gallon Drums
- Boring Log Forms
- Field Logbook
- Digital Camera
- GPS Location Device
- Measuring Tape

4.6.3.2 Soil Boring Procedures

Soil borings completed in the upper cohesive till will be completed using direct-push sampling techniques. Soil borings completed beneath the upper cohesive till will be completed using either direct-push sampling techniques or drilled using hollow stem auger. Boreholes drilled for the placement of shallow monitoring wells will be drilled using hollow stem augers. All soil borings will be continuously sampled to the boring completion depth.

Soil borings not completed as monitoring wells will be sealed according to applicable standards. Soil boring equipment will be decontaminated between soil borings. Drill cuttings from soil borings will be managed, as identified in Section 4.8.2.

4.6.4 Soil Sampling

4.6.4.1 Equipment and Materials

The following equipment may be required during soil sampling:

- Truck-Mounted Geoprobe
- Hollow Stem Auger
- Steam Cleaner
- Distilled Water
- 5035 Sampling Kits
- Alconox
- Cleaning Brushes and Buckets
- PID with Calibration Kit
- Zip Loc Bags
- Sampling Knife and Spoon
- Glass Sample Jars and Caps for Soil Classification
- Sample Labels and Chain-of-Custody Forms
- Coolers
- Boring Log Forms
- Digital Camera
- Field Logbook

4.6.4.2 Soil Sampling Procedures

Each soil boring will be continuously sampled to the boring completion depth. Soil samples will be described and classified according to the Unified Soil Classification System (USCS), and will be field-screened using a PID. A portion of each soil interval will be placed in a zip loc bag for headspace analysis using a PID, according to SOP No. 330 (Appendix B). Details regarding borehole logging and material classification and soil sampling are provided in SOP Nos. 120 and 200 (Appendix B), respectively.

For soil samples intended for VOC analysis, samples will be collected in accordance with Method 5035 preservation techniques.

4.6.5 Monitoring Well Construction

4.6.5.1 Equipment and Materials

The following equipment may be required during the construction and/or repair of monitoring wells:

- Hollow Stem Auger and Rotary Drill Rig
- Core boxes
- Steam Cleaner
- Water Level Indicator
- Distilled Water
- 2-Inch-Inside-Diameter, 10-Foot-Long, Stainless Steel Riser and End Cap
- 2-Inch-ID, 0.010-Inch Slotted Stainless Steel Well Screen
- Stick-Up Protective Casings
- Steel Surface Isolation Casing
- Expandable Locking Caps and Locks
- Filter Pack
- Buffer Sand
- Bentonite Chips
- Volclay/Bentonite Grout Mix
- Concrete

- PID with Calibration Kit
- Boring Log Forms
- Monitoring Well Construction Forms
- Field Logbook
- Digital Camera
- Measuring Tape

4.6.5.2 Monitoring Well Installation Procedures

Shallow monitoring wells will be constructed using flush threaded 2-inch-ID stainless steel, 0.010-inch machine-slotted screen and 2-inch-ID stainless steel riser. No adhesives, solvents, or grease will be used. The top of the riser for monitoring wells will be situated above grade and will be secured with an expandable locking cap with a hole drilled through its center. The construction details of the shallow monitoring wells are shown in Figure 4.6-1. Details regarding installation of the shallow monitoring wells are provided in SOP No. 210 (Appendix B).

After installation, the monitoring wells will be surveyed by a licensed surveyor for both horizontal (to the nearest foot) and vertical control. The top (north side) of the riser pipe for the monitoring wells will be surveyed to the nearest 0.01 foot. Ground elevation will be surveyed at each monitoring well to the nearest 0.1 foot.

4.6.6 Monitoring Well Development

4.6.6.1 Equipment and Materials

The following equipment may be required during monitoring well development:

- Water Level Indicator
- Distilled Water
- Potable Water
- Alconox

- Cleaning Brushes and Buckets
- Disposable Bailer
- Electric Submersible Pump
- Nylon Rope
- PID with Calibration Kit
- Horiba U-10 Water Quality Meter (or equivalent)
- 55-Gallon Drums
- 5-Gallon Bucket
- Well Development/Purge Forms
- Field Logbook
- Digital Camera

4.6.6.2 Monitoring Well Development Procedures

After a minimum of 48 hours following installation, the monitoring wells will be developed using a disposable bailer and/or electrical submersible pump. Prior to development, the static water level and the total depth at each well will be measured using an electronic water level indicator. The two measurements will be used to calculate the volume of standing water in each well (well volume). Monitoring well development will be performed by surging and purging using a bailer and/or electrical submersible pump.

Water quality parameters (i.e., conductivity, temperature, pH, PID, and turbidity) will be monitored initially and throughout development during removal of each well volume by a Clayton field technician. A minimum of ten well volumes of water from each well will be removed or, if there is insufficient water, the well(s) will be bailed/pumped dry at least five times. Development will be complete upon removal of the 10 well volumes (or bailed dry 2 to 5 times, depending on recovery rate) and upon stabilization of pH, conductivity, and temperature.

Criteria for stabilization, based on results for two successive sets of measurements, are:

- pH: $\pm$ 0.1 unit

- conductivity: ± 15%
- temperature: ± 0.5°C

If necessary, additional water may be removed in order to further reduce turbidity. Groundwater removed from monitoring wells will be managed as identified in Section 4.8.3. The details regarding well development is provided in SOP No. 212 (Appendix B).

4.6.7 Aquifer Pump Tests

4.6.7.1 Equipment and Materials

The following equipment will be required to perform the aquifer pump test:

- Water Level Indicator
- Multi-Channel Datalogger
- Transducer
- Lap-Top Computer
- Distilled Water
- Alconox
- Cleaning Brushes and Buckets
- Field Logbook
- Digital Camera
- C-Clamps

4.6.7.2 Aquifer Pump Test Procedures

A 72-hour pumping test will be conducted at a pump test well specifically installed to determine aquifer parameters in the discrete zone(s) to be remediated in Area 3. The results of the 72-hour pump test will allow the determination of site-specific hydraulic properties of the bedrock and/or glacial aquifer. This data will aid in the design evaluations for the groundwater remedial options available.

The pumping well and observation wells will be installed and identified according to methodology described in Section 4.3.3. A pre-test will be performed prior to the 72-hour pump test. The purpose for this pre-test will be to determine the maximum sustainable yield of the pumping well prior to the test. The water from this pre-test will be discharged to the sanitary sewer onsite.

Prior to the pump test being conducted, an antecedent trend period of 96 hours will be conducted. During this antecedent trend period, barometric pressure and water levels in the observation wells will be measured to establish any trends prior to the test.

The 72-hour pump test will be performed utilizing the observation wells at the south end of Area 3. Water from the test will be discharged to the sanitary sewer system. After the test is complete, the data collected during the test will undergo analysis to determine the aquifer parameters. This data will then be used to resign the aquifer remediation system.

4.6.8 Monitoring Well Static Water Level Measurement

4.6.8.1 Equipment and Materials

The following equipment may be required to perform monitoring well static water level measurements:

- Water Level Indicator
- Distilled Water
- Alconox
- Cleaning Brushes and Buckets
- Field Logbook

4.6.8.2 Monitoring Well Static Water Level Measurement Procedures

Measurements of static water levels in the monitoring wells will be taken using an electric water level indicator. The depth to water will be measured from a marked survey location on the rim of the riser. The static water level measurement will be recorded in the field logbook. Depths to water will be compared in the field to previous measurements and elevations to minimize the possibility of incorrect readings. The probe or tape will be rinsed with deionized water between each monitoring well. Details regarding measurement of water levels is provided in SOP No. 220 (Appendix B).

The water elevation data obtained will be used to estimate the magnitude and direction of the horizontal gradients in screened horizons.

4.6.9 Groundwater Sampling

4.6.9.1 Equipment and Materials

The following equipment may be required to perform groundwater sampling:

- Water Level Indicator
- Distilled Water
- Alconox
- Cleaning Brushes and Buckets
- Bladder Pump
- Electric Submersible Pump
- Disposable Bailers
- Peristaltic Pump
- Nylon Rope
- PID with Calibration Kit
- Horiba U-10 Water Quality Meter (or equivalent)
- 55-Gallon Drums
- 5-Gallon Bucket
- Sample Containers
- Plastic Sheeting

- Chain-of-Custody Forms and Sample Labels
- Coolers and Ice
- Well Development/Purge Forms
- Field Logbook
- Digital Camera

4.6.9.2 Monitoring Well Groundwater Sampling Procedures

Prior to water sample collection, a static water level measurement in each well will be acquired, and a minimum of three casing and filter pack volumes of water will be removed from each of the monitoring wells. If necessary, purging of each well will continue until measurements in the purged water stream for temperature, pH, and conductivity have stabilized for three consecutive readings, or the well has been purged dry. The stabilization criteria will be as follows:

- temperature: $\pm$ 0.5 °C
- pH: $\pm$ 0.1 unit
- conductivity: $\pm$ 15%

Purging will be conducted using a submersible pump or bladder pump. Groundwater samples will be acquired bladder pump, disposable bailer, or peristaltic pump. Groundwater samples for laboratory analyses will be collected in laboratory-supplied containers, labeled, and properly sealed.

Groundwater removed from monitoring wells will be managed as identified in Section 4.8.3.

Details regarding groundwater sampling is provided in SOP No. 410 (Appendix B).

4.6.10 Bore Hole and Monitoring Well Abandonment

Boreholes will be sealed and monitoring wells will be abandoned, if necessary, in accordance with Title 77 of the Illinois Administrative Code, Part 920, *Illinois Water Well Construction Code*.

4.7 SAMPLE HANDLING AND ANALYSIS

Field activities required for sampling will include collection and preservation of samples as well as documentation, packing, transportation, and handling of the samples prior to receipt by the laboratory. The objectives, activities, analyses, sample handling, preservation, and QA/QC for samples collected during the investigation are summarized in the following sections. Details of laboratory analytical protocols and QA/QC sampling requirements are presented in the Quality Assurance Project Plan provide in Section 4.9.

4.7.1 Sample Analysis

Selected soil and groundwater samples will be collected during the investigation either submitted to an independent laboratory for analysis or analyzed onsite using a field GC.

4.7.1.1 Soil Samples

Selected soil samples from soil borings associated with the Area 1 and Area 2 investigations will be submitted to an independent laboratory for VOC analysis using Method 8260B.

Selected soil samples from soil borings associated with the Area 3 investigation will be analyzed onsite for TCE, PCE, TCA, cis-1,2-DCE, and VC using a field GC. All soil

samples will be sampled and preserved in accordance with Method 5035 sampling protocols.

4.7.1.2 Groundwater Samples

Groundwater samples collected from the shallow monitoring wells proposed for Area 3 will be analyzed for the presence of the following list of indicator parameters:

Constituent	**Analysis Method**
VOCs and 15 TICs*	SW8260b
Ethene/Ethane	EPA 3810
Oxidation-Reduction Potential	In-field meter utilizing a flow through cell
Dissolved oxygen	In-field meter utilizing a flow through cell
Iron (filtered)	SW6010A
Manganese (filtered)	SW6010A
Sulfate	SW9036
Sulfide	EPA376.2
Nitrate	IC Method E300
Chlorides	SW9050
Total Organic Carbon	SW9060
Chemical Oxygen Demand	SM 5220 A-D

* The 15 largest tentatively identified compound peaks associated with the SW8260b analysis and compared to the EPA library will be reported.

Groundwater grab samples collected from the boreholes associated with the Area 3 investigation will be analyzed onsite for TCE, PCE, TCA, cis-1,2-DCE, and VC using a field GC.

4.7.1.3 QA/QC Samples

QA/QC samples will be collected and analyzed in conjunction with the investigative samples. The types of QA/QC samples and their frequencies are described below. Details regarding the collection of QA/QC samples are provided in the QAPP and SOP No. 920 (Appendix B).

Trip Blank

A trip blank is a water sample prepared by the laboratory that is transported to the sampling site and is handled in the same manner as other samples, except that it remains unopened, and then is returned to the laboratory for analysis to determine QA/QC of sample handling procedures. One trip blank will be included in each cooler containing groundwater for VOC analysis.

Equipment Rinseate Blank

A sample of distilled water is routed through decontaminated sampling equipment in a manner identical to the collection of actual investigative samples to assess the effectiveness of decontamination procedures. One rinse blank will be taken for each type of sampling procedure (i.e., groundwater, sediment, etc.).

Field Duplicate

A field duplicate is a blind duplicate sample taken in the field and sent to the laboratory for analysis. The results will provide some indication of the homogeneity of the sample medium and the precision of the laboratory and its equipment. A minimum of one field duplicate will be collected for each ten or fewer organic samples of soil and groundwater.

MS/MSD

A MS/MSD is a separate sample or additional sample volume (the samples will be split at the laboratory to provide the MS duplicate) collected in the field and sent to the

laboratory for analysis. The results provide information about the effect of sample matrix on the digestion and measurement methodology. MS/MSDs will be collected for each 20 or fewer organic samples of groundwater. MS/MSDs will not be obtained at the same locations as duplicates.

4.7.2 Sample Containers and Handling

All samples will be placed in appropriate sample containers, labeled, and properly sealed. The sample labels will include sample number, place of collection, date and time of collection, and analyses to be performed. Samples will be cushioned within the shipping coolers by the use of foam chips and/or bubble wrap. Samples will be kept cool by the use of sealed plastic bags of ice. A trip blank will accompany each shipment of water samples submitted for VOC analysis. Details regarding sample containers, preservation, and holding times are provided in SOP No. 910 (Appendix B). Details regarding sample classification, storage, packaging, and shipment are provided in SOP No. 911 (Appendix B).

All analytical samples submitted for independent laboratory analysis will be shipped to First Environmental Laboratories, with the exception of ethene and ethane analysis of groundwater. Groundwater samples will be submitted to Pace Analytical Services, Inc. in Minneapolis, Minnesota. The coolers will be sealed and kept in a designated secure area until they can be shipped on the next business day. Details regarding sample control and custody procedures are provided in SOP No. 912 (Appendix B).

4.7.3 Sample Packaging and Shipping Protocol

The sample packaging and shipping procedures summarized below and SOP Nos. 911 and 912 will ensure that the samples arrive at the laboratory with the chain of custody intact:

1. The field sampler is personally responsible for the care and custody of the samples until they are transferred to another person or the laboratory. As few people as possible will handle the samples.

2. All sample containers will be identified using sample labels that include the date of collection and analyses to be performed.

3. Sample labels will be completed for each sample using waterproof ink unless prohibited by weather conditions. For example, a logbook entry would explain that a pencil was used to fill out the sample label because the ballpoint pen would not function in freezing weather.

4. Samples will be accompanied by a properly completed chain of custody form. The sample identification numbers will be listed on the chain of custody form. When transferring the possession of samples, the individuals relinquishing and receiving the samples will sign and record the date and time on the form. The chain of custody form documents sample custody transfers from the sampler to another person, to the laboratory, or to/from a secure storage area.

5. Samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis, with a separate signed chain of custody form enclosed in each sample cooler. Shipping coolers will be secured with custody tape for shipment to the laboratory. The custody tape is then covered with clear plastic tape to prevent accidental damage to the custody tape.

6. All sample shipments will be accompanied by the chain of custody form identifying its contents. The chain of custody form is a three-part carbonless-copy form. The form is completed by the sampling team who, after signing and relinquishing custody to the shipper, retain the bottom copy. The middle copy is retained by the laboratory, and the fully executed white copy is returned as part of the data deliverables package.

7. If the samples are sent by common carrier, a bill of lading will be used, and copies will be retained as permanent documentation. Commercial carriers are not required to sign the chain of custody form as long as the form is sealed inside the sample cooler and the custody tape remains intact.

8. Samples will usually be transported or shipped to the laboratory the same day the samples are collected in the field.

4.7.4 Documentation of Field Activities

Field logbooks will provide the means of recording field activities and data collection during the investigation. Logbook entries will be described in as much detail as possible so that persons going to the site could reconstruct a particular situation solely from the logbook entries. Field logbooks will be bound field survey books or notebooks. Details regarding field documentation are provided in SOP No. 110 (Appendix B).

4.8 MANAGEMENT OF INVESTIGATION-DERIVED MATERIALS

4.8.1 Equipment Decontamination

A high-pressure power washer supplied with potable water will be used for decontamination of the drilling equipment. Prior to entering the site, all appropriate parts of the drilling equipment will be thoroughly washed with a standard commercial soap and clean water to remove soil, oil, and grease. Before initiating soil boring activities and between each soil boring location, the appropriate parts of the soil boring equipment (including augers, drill bits, drill rods and any associated tools that enter boreholes) will be high-pressure power-washed at the decontamination station.

Sampling equipment such as downhole pumps, bailers, and scoops (that will be reused during sampling) will be decontaminated between each sampling location or interval, if applicable. This decontamination protocol consists of scrubbing the equipment with an Alconox or comparable solution and tap water wash followed by a distilled water rinse.

Mud and surficial soils removed during equipment decontamination process will be managed with investigation-derived soils as described in Section 4.8.2. Decontamination water will be managed as outlined in Section 4.8.3. Details regarding decontamination are provided in SOP No. 500 (Appendix B).

4.8.2 Management of Investigation-Derived Soils

Soil cuttings brought to the surface during drilling activities will be containerized and staged onsite. All containers will be labeled as to their contents and date of origin, pending management offsite.

4.8.3 Management of Investigation-Derived Liquids

Decontamination water and groundwater generated during development or purging of monitoring wells will be containerized and staged onsite. All containers will be labeled as to their contents and date of origin, pending management offsite.

4.9 QUALITY ASSURANCE PROJECT PLAN

This Quality Assurance Project Plan (QAPP) presents the organization, data quality objectives, functional activities, analytical methods, and specific Quality Assurance and Quality Control (QA/QC) procedures to be utilized by Clayton and its subcontractors during the implementation of the LWP at the site. This QAPP has been prepared to provide QA/QC procedures to be followed during implementation of the LWP at the site. Field data collection activities are described in Sections 4.1 through 4.8. This QAPP has been prepared in accordance with applicable USEPA guidance documents, and good engineering practices.

4.9.1 Project Description

This QAPP has been developed for, and is part of, the LWP for the site. The project description is presented in Section 1.2.

4.9.1.1 Site Background

A detailed site background is presented in Section 1.

4.9.1.2 Sampling Network and Rationale

The sampling network and rationale specified by the scope of work is presented in Sections 4.1 through Section 4.8.

4.9.1.3 Data Quality Objectives

Data Quality Objectives (DQOs) are qualitative and quantitative statements that specify the quality of the data required to support decisions to be made during FSP activities and are based on the end uses of the data to be collected. The levels of analytical data quality are:

- Screening (DQO Level I): This provides the lowest data quality but the most rapid results. It is often used for health and safety monitoring, initial site characterization to locate areas for subsequent and more accurate analyses, and for engineering screening of alternatives (bench-scale tests). These types of data include those generated onsite through the use of PID and other real-time monitoring equipment at the site.

- Field Analyses (DQO Level II): This provides rapid results and better quality than in Level 1. This level may include mobile lab-generated data depending on the level of quality control exercised. The field analyses can provide data from the analyses of soil for many organic analytes.

- Laboratory Analysis (DQO Level III): This level refers to analyses conducted by standard documented procedures in a laboratory. This level provides an intermediate level of data quality designed to provide confirmed identification and quantification of analytes in soil. Level III protocols all have built-in QA/QC including external QA in the form of duplicate samples. Level III analytical methods and protocols are identified in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition and subsequent Updates. Level III data is used for confirmation of Level I and Level II field data and environmental monitoring to demonstrate

attainment of cleanup objectives or compliance with applicable standards. Level III data should provide sufficient documentation to allow qualified personnel to review, evaluate, and validate data quality in accordance with acknowledged standards and protocols.

Laboratory analysis of samples to be collected during implementation of the FSP will provide Level III quality. First Environmental Laboratories and Pace Analytical Services will analyze the samples submitted for offsite analysis. The laboratories will conduct the laboratory analyses according to the USEPA Region 5's Quality Assurance Project Plan to ensure the reliability and validity of the laboratory data.

4.9.1.4 Project Schedule

The LWP project schedule is described in Section 8.

4.9.2 Project Organization and Responsibility

Clayton will conduct the LWP activities for the site. First Environmental Laboratories and Pace Analytical Services will analyze the samples submitted for offsite analysis. Clayton project management responsibilities are described in Section 9.0.

4.9.3 Quality Assurance Objectives for Measurement Data

The overall QA objective is to develop and implement procedures for field sampling, chain of custody, laboratory analysis, and reporting that will provide results legally defensible in a court of law. Specific procedures for sampling, chain of custody, internal quality control, audits, preventive maintenance of field equipment, and corrective action are described in this QAPP.

4.9.3.1 Field Precision Objectives

Precision is the measure of degree to which two or more measurements agree. Precision of the field sample collection procedures will be assessed by the data from analysis of field duplicate samples. Relative percent differences (RPDs) will be calculated for detected compounds from field duplicate sets. A RPD of 20 percent will be used as an advisory limit, but professional judgement will be used for any data qualification.

Field precision for measurements will be assessed through the collection and analysis of duplicate samples at a rate of one duplicate per 10 investigative samples.

4.9.3.2 Field Accuracy Objectives

Accuracy is the degree of agreement between a measured value and the accepted reference value. Accuracy of the field sample collection procedures will be assessed through the use of trip blanks and equipment rinseate blanks. Accuracy will be ensured through adherence to all sample handling procedures, sample preservation requirements, and holding times.

4.9.3.3 Field Completeness Objectives

Completeness is a measure of the amount of valid (useable) data obtained from the measurement system relative to the amount that was collected. Field completeness is a measure of the amount of valid measurements obtained from all the measurements taken in the project. Valid data will be defined as all data and/or qualified data considered to meet the DQOs for this project. Field completeness objectives for this project will be greater than 90 percent.

4.9.3.4 Measures to Insure Representativeness of Field Data

Representativeness expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Representativeness is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the LWP is followed and that proper sampling techniques are used.

Specific field procedures that will help ensure representativeness of specific samples are presented below:

1. Collect samples representative of the entire sample interval.
2. Use appropriate sampling methodology and equipment.
3. Use appropriate sampling procedures, including equipment decontamination.
4. Perform sampling procedures consistently and methodically.

4.9.3.5 Measures to Ensure Comparability of Field Data

Comparability is an expression of the confidence with which one data set can be compared with another. Comparability is also dependent upon similar QA objectives. Comparability is dependent upon the proper design of the sampling program and will be satisfied by adhering to the standard sample collection, standard analytical procedures, and standard reporting methods described in the LWP.

4.9.3.6 Level of Quality Control Effort

To assess the quality of data resulting from the sampling program, field duplicate, and equipment rinseate blank samples will be collected and submitted for VOCs and other and wet chemistry analysis. Field duplicate samples will be collected at a frequency of one per 10 investigative samples. If fewer than 10 project samples are collected, a

minimum of one field duplicate sample will be submitted per sampling event. Field duplicate samples will receive a unique sample identification number and will be submitted to the laboratory as a duplicate to avoid laboratory bias.

Matrix spikes provide information about the effect of the sample matrix on the preparation and measurement methodology. Matrix spike and matrix spike duplicate (MS/MSD) samples will be designated and analyzed at a frequency of one per 20 project samples. If fewer than 20 project samples are collected, a minimum of one MS/MSD sample will be submitted per sampling event.

Preserved trip blank samples for VOC analyses (prepared by the laboratory and consisting of distilled water poured into the sample vials) will be shipped with each shipping container of VOC groundwater and surface water/sediment samples. Trip blank samples will be handled in a manner consistent with actual field sample handling. The trip blanks will provide a measure of potential cross-contamination of samples during shipment and handling. Trip blanks will not be opened in the field.

Equipment rinseate blank samples are analyzed to check for procedural contamination at the site that may cause sample contamination. Equipment rinseate blanks will be collected by pouring distilled water over the sampling equipment and allowing the water to flow directly into the sample containers. An equipment rinseate blank will be collected for each different sampling method for each separate sampling round.

The level of QC effort for the field measurement of pH, conductivity, temperature, and turbidity consists of daily calibration of the Horiba U-10 water quality meter. Water levels will measured to the nearest 0.01 foot using an electric sounding water level meter.

4.9.4 Sampling Procedures

Specific sampling procedures for the collection of soil and groundwater samples are provided in Section 4.6.

4.9.4.1 Sample Containers

Required sample containers, sample preservation methods, maximum holding times, and filling instructions are discussed in Section 4.7.2.

4.9.4.2 Sample Labeling

Each sample will be labeled with a unique sample number to facilitate tracking and cross-referencing sample information. The sample numbering system is described in Section 4.5.

4.9.5 Sample Custody and Document Control

Custody is one of several factors necessary for the admissibility of environmental data as evidence in a court of law. Custody procedures help to satisfy the two major requirements for admissibility: relevance and authenticity. Sample custody is addressed in three parts: field sample collection, laboratory analysis, and final evidence files. Final evidence files, including all original laboratory reports, are maintained under document control in a secure area.

A sample or evidence file is in a person's custody if:

- The item is in actual possession of a person; or
- The item is in the view of the person after being in actual possession of the person; or
- The item was in actual physical possession but is secured to prevent tampering; or

- The item is in a designated and identified secure area.

4.9.5.1 Documentation of Field Activities

Field logbooks will provide the means of recording the data collecting activities performed. As such, logbook entries will be described in as much detail as possible so that persons going to the Site could reconstruct a particular situation solely from the logbook entries. Field activity documentation procedures are described in Section 4.7.4.

4.9.5.2 Sample Packaging and Shipping Protocol

The sample packaging and shipping procedures are described in Section 4.7.3.

4.9.5.3 Sample Container and Handling

All samples will be placed in appropriate sample containers, labeled, and properly sealed. The sample labels will include sample number, place of collection, date and time of collection, and analyses to be performed. Samples will be cushioned within the shipping coolers by the use of foam chips and/or bubble wrap. Samples will be kept cool by the use of sealed plastic bags of ice. A trip blank will accompany each shipment of water samples submitted for VOC analysis.

4.9.5.4 Final Evidence Files Custody Procedures

Evidentiary files for the entire project will be maintained by Clayton's Project Manager and will consist of the following:

- Project plan
- Project log books
- Field data records

- Sample identification documents
- Chain of custody records
- Correspondence
- References and literature
- Laboratory data deliverables
- Data validation reports
- Interim project/progress reports
- QA reports
- Miscellaneous (photos, maps, drawings, etc.)
- Final report

4.9.6 Calibration Procedures of Field Instruments

Instruments and equipment used to gather, generate, or measure environmental data will be calibrated with sufficient frequency and in such a manner that accuracy and reproducibility of results are consistent with the manufacturer's specification. Calibration procedures are described in Section 4.6.2.

4.9.7 Internal Quality Control Checks and Frequency

This section presents the internal quality control checks employed for field measurements. Quality control procedures for field measurements will be limited to checking the reproducibility of the measurement in the field by obtaining multiple readings and by calibrating the instruments (where appropriate).

4.9.8 Data Reduction, Validation, and Reporting

All data generated in field activities will be reduced and validated prior to reporting. No field or laboratory data will be disseminated until the data have been subjected to the procedures summarized in the sections below.

4.9.8.1 Field Data Reduction

Field data reduction procedures will be minimal in scope compared to those implemented for laboratory data. Only direct reading instrumentation will be employed in the field. The use of field instrument meters will generate data read directly from the meters. These data will be recorded into field logbooks immediately after the measurements are taken. If errors are made, results will be legibly crossed out, initialed by the field sampler, and corrected in a space adjacent to the original (erroneous) entry. Data transcribed from the field logbook into summary tables for reporting purposes will be verified for correctness by the Project Coordinator.

4.9.8.2 Data Validation

Data validation procedures will be performed for field operations as described in the following subsections. Procedures to evaluate field data for this project primarily consist of checking for transcription errors and review of field logbooks. This task will be the responsibility of the Project Coordinator.

4.9.9 Internal Field Audits

Performance and system audits of field activities may be conducted to verify that sampling and analysis are performed in accordance with the procedures established in the FSP and QAPP.

These audits will verify that all established procedures are being followed. Internal field audits will be conducted at the beginning of sample collection activities to identify deficiencies in the field sampling and documentation procedures. Any deficiencies identified will be documented, and corrective actions will be taken to rectify the

deficiencies. Follow-up audits will be performed as necessary to verify that deficiencies have been corrected, and that QA procedures are maintained throughout the project.

Internal field audits will include the examination of field sampling records, field instrument operating records, field instrument calibration records, and chain of custody documentation. In addition, sample collection, handling, and packaging in compliance with the established procedures will be reviewed during field audits.

4.9.10 Field Instrument Preventative Maintenance

The field equipment for this project includes a photoionization detector (PID) or equivalent, and a Horiba U-10 or equivalent water quality meter. Specific preventive maintenance procedures to be followed for field equipment are those recommended by the manufacturer. Field instruments will be checked and calibrated daily before use.

4.9.11 Field Corrective Action

Corrective action is the process of identifying, recommending, approving, and implementing measures to counter unacceptable procedures or out of quality control performance that can affect data quality. Corrective action can occur during field activities, laboratory analyses, and data validation and assessment. All corrective action proposed and implemented will be documented.

Corrective action in the field may be necessary when the sample network is changed (i.e., more/less samples, sampling locations other than those specified in the QAPP), or sampling procedures and/or field analytical procedures require modification due to unexpected conditions. In general, the field sampling team may identify the need for corrective action. The field sampling team, in consultation with the Project Coordinator, will recommend a corrective action. The Project Manager will approve the corrective

action to be implemented by the field team. It will be the responsibility of the Project Manager to ensure the corrective action has been implemented.

Corrective action resulting from internal field audits will be implemented immediately if data may be adversely affected due to unapproved or improper use of approved methods. The Project Coordinator will identify deficiencies and recommended corrective action to the Project Manager. Implementation of corrective actions will be performed by the Project Coordinator and field team. Corrective action will be documented in the field logbook and/or the project file.

4.9.12 Quality Assurance Reports to Management

Management will receive reports on data quality on an as needed basis.

Minimally, these reports will include:

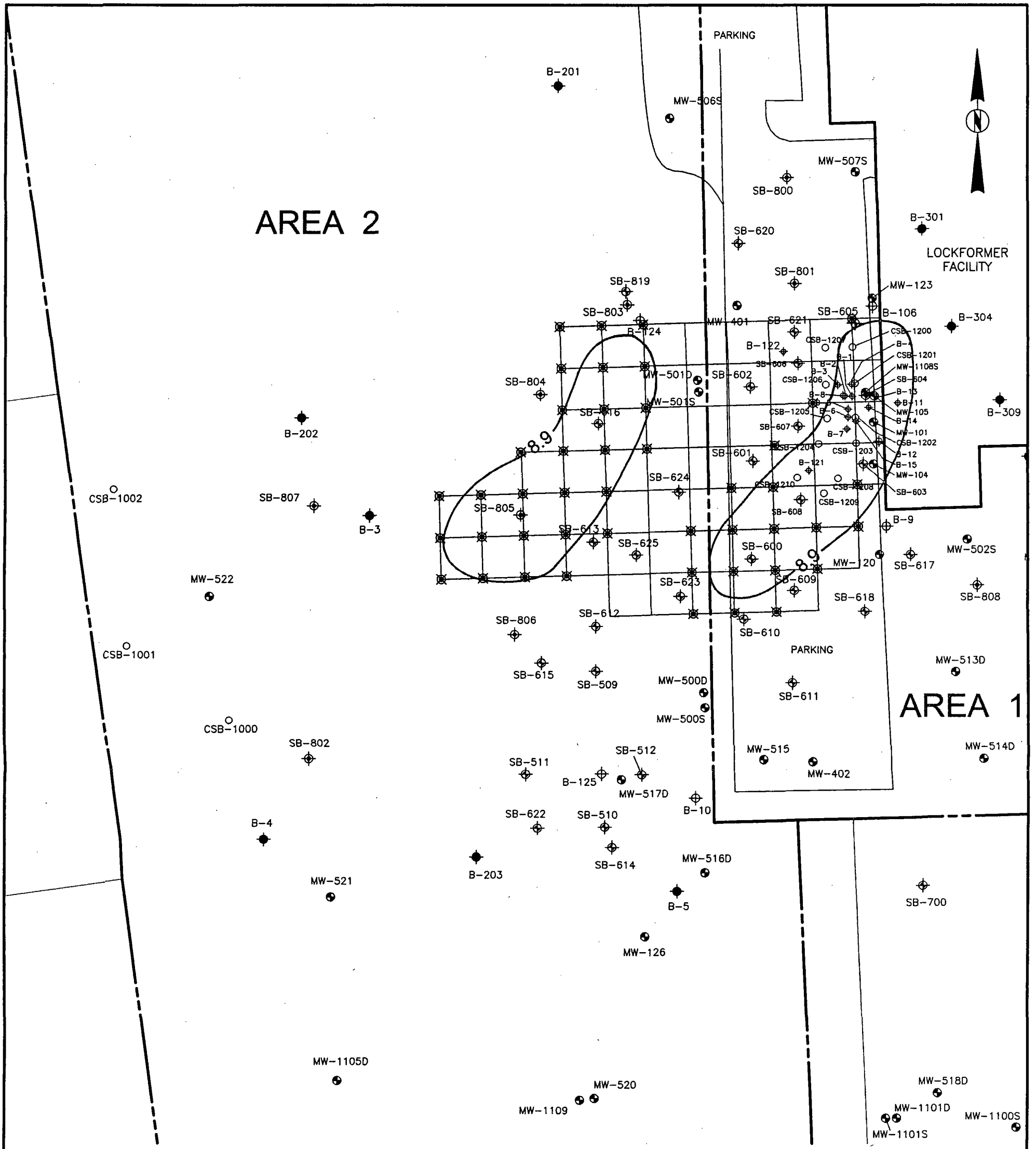
- Assessment of measurement quality indicators (i.e., data accuracy, precision, and completeness).
- Any changes in the QA/QC program.
- Results of system audits.
- QA problems, action taken, and resolutions.

The final report for the project will also include a separate QA section that will summarize data quality information and overall data assessment in accordance with the data quality objectives outlined in this QAPP.

4.9.13 Laboratory QA/QC Procedures

First Environmental Services, Pace Analytical Services, and approved subcontractors will perform all offsite chemical analysis of the soil and groundwater samples. The laboratory will perform all analyses in accordance with the USEPA Region 5 QAPP. Sample analysis is described in Section 4.7.1.

FIGURES



LEGEND

- PROPOSED GRID BORING LOCATION
- MONITORING WELL
- SOIL BORING COMPLETED BY CLAYTON (1200 SERIES)
- SOIL BORING COMPLETED BY STS (1992 & 1995)
- SOIL BORING OF GEOPROBE COMPLETED BY STS (1997)
- SOIL BORING COMPLETED BY CEI (8/98, 2/99 AND 12/00)
- SOIL BORING COMPLETED BY CEI (11/00)
- — 8.9 — ESTIMATED LIMIT OF COHESIVE UPPER TILL CONTAINING > 8.9 mg/kg TCE.

SCALE IN FEET

0 30 60 120

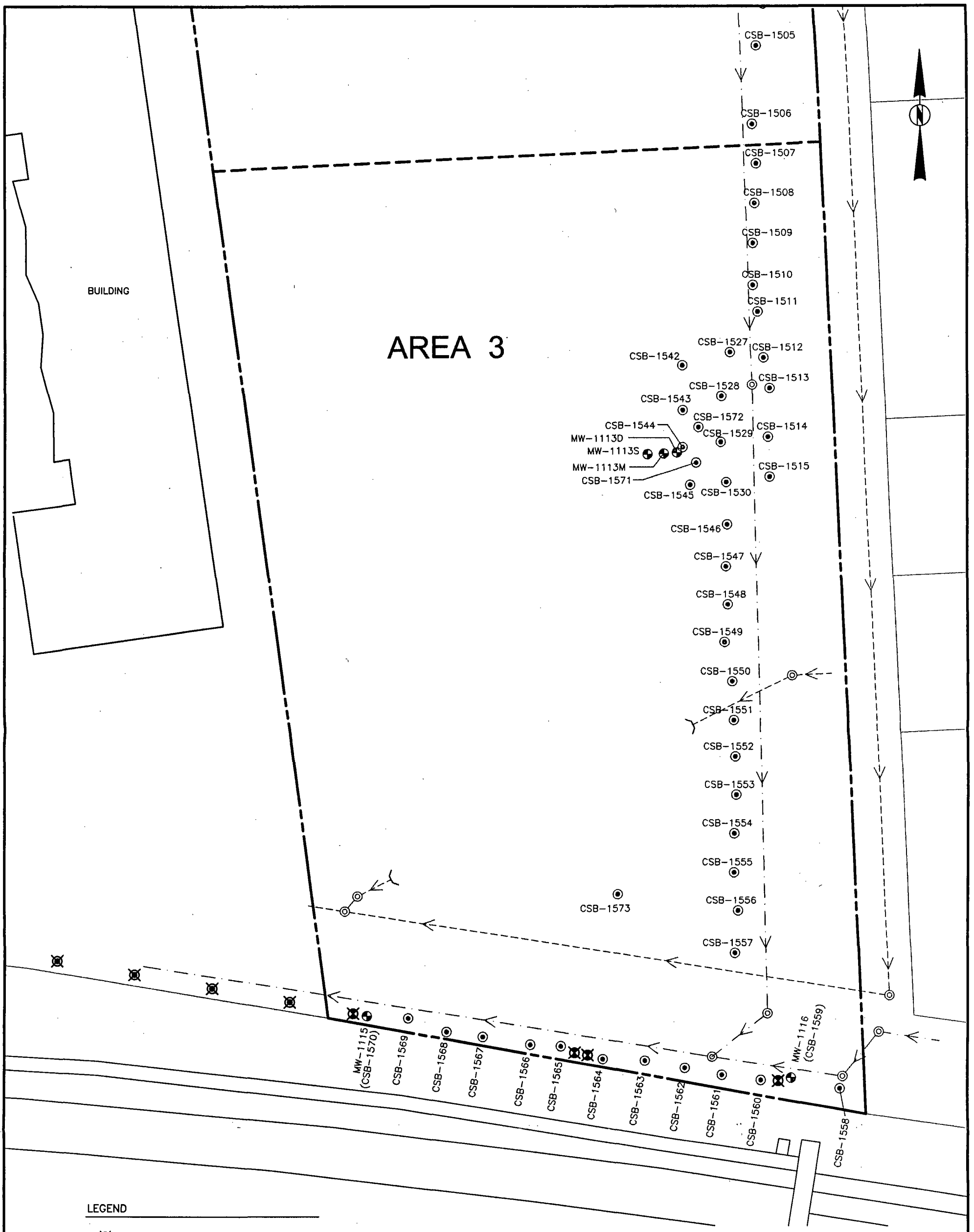
CHECK BY	
DRAWN BY	BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526303G
PRJ NO.	65263.01

SOIL BORING GRID LAYOUT

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE 4.1-1



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DRAWN BY	BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526303H
PRJ NO.	65263.01

AREA 3 LAYOUT MAP

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton℠ GROUP SERVICES

FIGURE 4.3-1

SURFACE DRAINAGE WAY SAMPLING MAP
THE LOCKFORMER COMPANY / LISLE, ILLINOIS

Map Base: EPA Report - TS-PIC-20105579S
Figure 4, Base Aerial Photograph - April 9, 1970

Legend

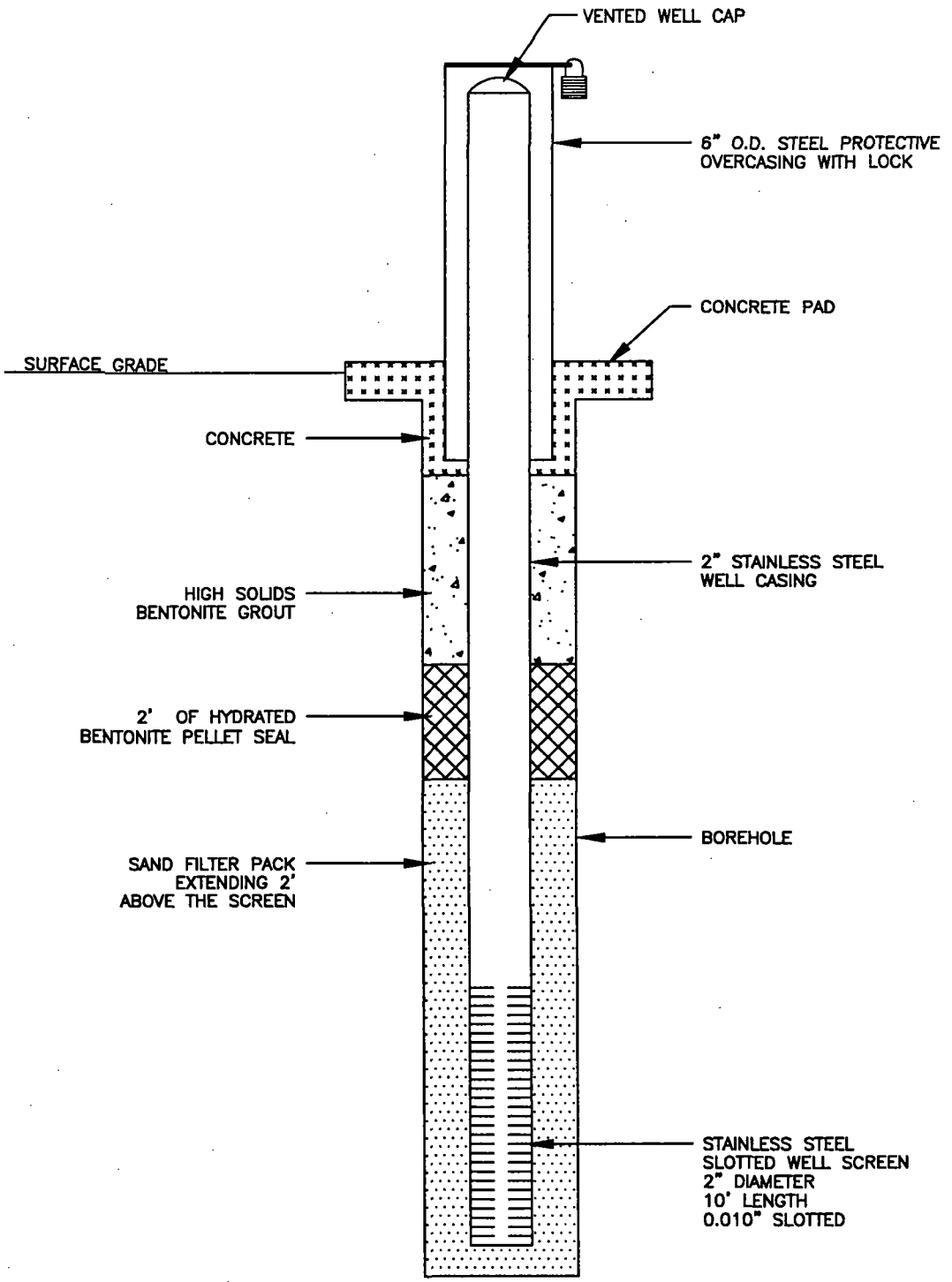
⊕ PROPROSED BORING LOCATION

0 100 200 300 400 Feet

Project: 15-65263.01
SUR_DRAIN_SAM.MXD
Date: 12/11/01
Drawn By SFS

Clayton GROUP SERVICES

FIGURE 4.4-1



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DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526301H
PRJ NO.	65263.01.

SHALLOW WELL CONSTRUCTION DIAGRAM

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
4.6-1

5.0 REMEDIAL TECHNOLOGY IMPLEMENTATION

Lockformer has chosen Electrical Resistive Heating (ERH), an *in situ* technology, for remediation of the Surficial Silty Clay Till and Fill. The process description and design specifications are provided in Section 5.1. Soil Vapor Extraction (SVE) has been selected as the *in situ* remedial technology for treatment of the Mass Waste Sand and Gravel, and the former vapor degreaser pit. The process description and design specifications for the Mass Waste Sand and Gravel SVE system are described in Section 5.2. Treatment of water generated during the remedial activities is discussed in Section 5.3. Section 5.4 describes the proposed air monitoring program. Management of the installation-derived wastes is discussed in Section 5.5. Section 5.6 describes how the degreaser will be removed.

5.1 ELECTRICAL RESISTIVE HEATING

ERH is typically employed in fine-grained soils and involves heating the subsurface to enhance SVE of the contaminants. At the Lockformer site, ERH will be used to a depth of 30 feet. Thermal Remediation Services (THERMAL) will implement the ERH remediation technology, which is a multi-phase electrical technique that uses common power line frequency electricity to resistively heat soil. This *in situ* heating process both directly volatilizes contaminants and creates an *in situ* source of steam that strips volatile contaminants from soil. The ERH process enhances the conventional SVE process, which is used to pull steam and contaminated vapors into vapor recovery wells, and then to the surface where the steam is condensed to water and vapors are treated to remove contaminants. The preliminary design for the spacing of electrodes is shown in Figure 5.1-1.

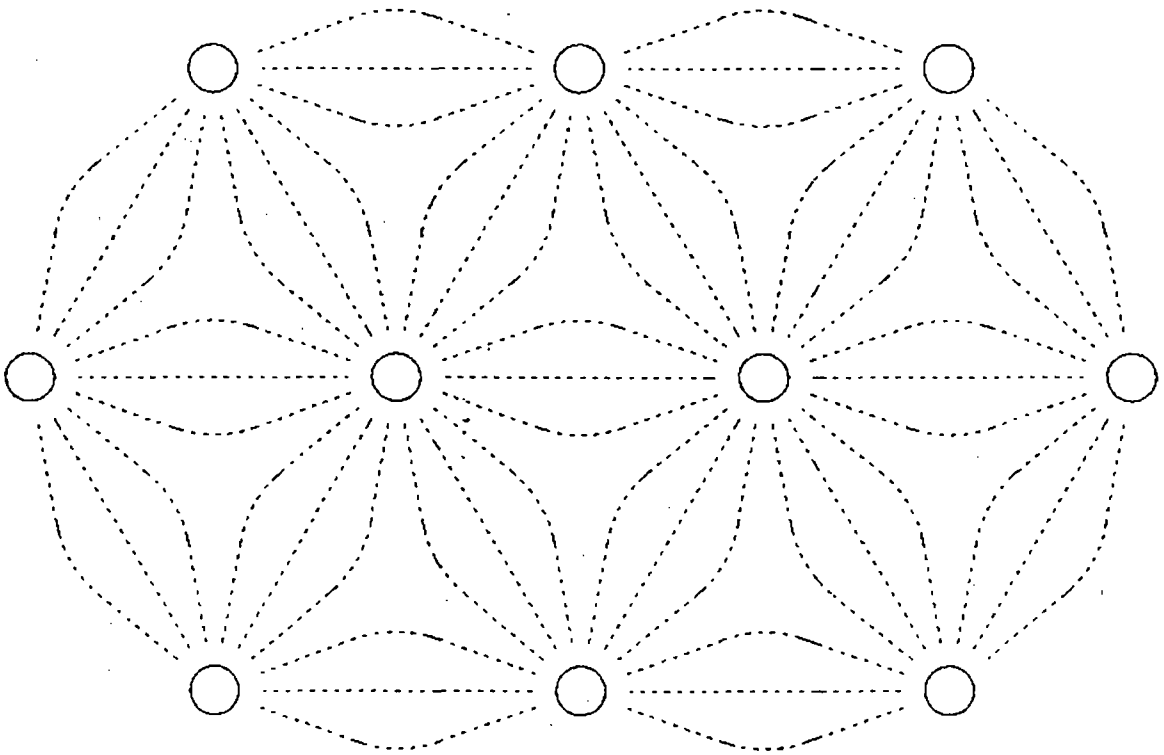
The success of the remediation will be judged based on a conservative confirmatory soil sampling and testing plan (see Section 6.0). Confirmatory sampling will be performed by

sampling the area over which contamination is defined as exceeding the ROs per Sections 4.1 and 4.2.

5.1.1 Electrical Resistive Heating Process

ERH remediates the subsurface by passing an electrical current through the soil matrix. Heat is generated evenly throughout the soil in the remediation area, and the temperature of the soil is increased to the boiling point of the water/contaminant mixture contained in the soil pores. Soil moisture boils into steam carrying contaminant vapors that travel to vapor recovery wells for removal.

Typically, electrodes are installed in a hexagonal arrangement, and each electrode conducts electricity with as many as six other nearby electrodes. In addition to flowing along the straight-line path between the electrodes, the current also fans out slightly as it travels as shown below:



The electrical current also fans out in the vertical direction, treating soil that lies in the conductive depth interval of the electrodes plus soil that lies up to approximately 3 feet above or below the conductive interval.

The result of this electrical current pattern is very even heat generation in the subsurface that leads to uniform steam production and TCE solvent volatilization throughout the treatment volume.

A vacuum is applied to the vapor recovery wells and pulls steam, air, and chlorinated solvents vapor to the surface. High-temperature CPVC piping is used to convey the vapor from the recovery wells to the steam condenser. The steam is condensed into water vapor and pumped into the condenser-cooling loop where most of the water is then re-evaporated and discharged to the atmosphere as water vapor. TCE vapor and air is conveyed from the condenser to the vacuum blower to one equalization tank, through a carbon adsorption unit and finally is discharged to the atmosphere.

It is not necessary that all electrodes be placed on service simultaneously. A balance between two factors determines the number of on-service electrodes:

- Faster treatment of smaller volumes leads to more efficient energy usage; less heat conducts away from a small volume than from a large volume.
- Concentrating all ERH power on too small of a volume can lead to electrode dryout problems.

Electrodes will be taken off service when operational data indicate that their region is likely to meet the remediation objective. Indications of meeting the objective include:

- Temperature monitoring shows that the subsurface has reached the boiling point of water. Highly contaminated regions will be boiled for several weeks.

- The TCE concentration in the off gas typically fluctuates widely during heat-up of the site. Once a region reaches the boiling point of water, the offgas concentrations typically stabilize and decline. When the TCE concentration decrease by approximately 80% from peak concentrations (corresponding to approximately a 99% decrease at ambient temperatures), resistive heating is typically stopped and interim soil sampling is performed. It is expected TCE vapor concentrations below 1 milligram per liter (mg/L), will be indicative that the region being heated will most likely meet the remediation objective.

When a region is likely to have reached the remediation objective, ERH operation in that area will be stopped and interim soil samples will be collected. Based upon the results of interim sampling, heating can be continued or post-remedial sampling can be conducted to document that the cleanup objectives have been achieved. If necessary, a region will undergo more than one round of ERH operation and confirmatory soil sampling.

5.1.2 Performance and Reliability of Technology

ERH remediates the subsurface by passing an electrical current through the soil matrix. The current passage generates heat due to the soil electrical resistance. This is the same process used in any electrically heated device (clothes iron, heater, stove, etc.). Heat is generated throughout the soil in the remediation area, and the temperature of the soil is increased to the boiling point of the water/contaminant mixture contained in the soil pores. Soil moisture boils into steam and contaminant vapors that travel to vapor recovery wells for removal from the subsurface.

ERH is a very thorough and reliable remediation technique for this application for the following reasons:

- Heat is generated uniformly throughout the treatment volume. Soil heterogeneity or low permeability do not adversely effect ERH. In fact, low permeability soils tend to carry a greater current than sandy soils and thus receive more energy and heat to boiling faster.

- Anaerobic dechlorination of TCE add conductive chloride ions to "hot spots," likewise attracting current for faster remediation of the impacted regions of the site.

- The boiling of soil moisture in clay lenses will form steam that will sweep out TCE. This steam stripping process effectively increases the permeability of clay soils.

- Because ERH treats all soils in the treatment volume, there are no untreated regions from which contaminants could diffuse later and cause rebound. Rebound has not been observed at any ERH site.

- The volatilization properties of TCE favor heating as a removal method. Vapor pressures increase with temperature, resulting in a corresponding increase in the Henry's Law Constant (H_c) for DNAPL constituents. The Henry's Law Constants for TCE have been found to increase by an order of magnitude when the temperature is increased from 20°C (68°F) to 90°C (193°F) (Heron et al. 1996). TCE boils at 87° C, far below the boiling point of water that will be attained throughout the treatment volume towards the end of the remediation process.

- As subsurface temperatures rise, the rates of naturally occurring biological activity and chemical reactions that cause *in situ* dechlorination are dramatically increased. Although volatilization usually is the primary removal mechanism for VOCs during ERH, some of the VOCs are degraded in place by *in situ* processes. These *in situ* processes include bio-attenuation, hydrolysis, and hydrous pyrolysis-oxidation (HPO).

- The biodegradation of chlorinated VOCs is most commonly observed as an anaerobic process. Thermophilic bacteria (those that grow at high temperatures) degrade chlorinated VOCs at a much higher rate than typically is observed under ambient conditions. This mechanism is especially important at sites with high levels of total organic carbon (TOC), which provides a carbon source for co-metabolism.

- Hydrolysis is a chemical substitution reaction in which hydrogen ions in water react with organic molecules, replacing chlorine atoms. Oxidizing conditions or available oxygen are not required for hydrolysis. While hydrolysis will degrade VOCs at room temperature, it is generally slower than biodegradation except for compounds such as chlorinated ethanes.

- Hydrous pyrolysis is the breaking apart of complex molecules into simpler units while dissolved in hot water. It generally is referred to as HPO to differentiate it from hydrolysis. HPO requires oxidizing conditions or dissolved oxygen. HPO is insignificant at room temperature but can become important at elevated temperatures.

- Both hydrolysis and HPO are strongly affected by temperature as described by the Arrhenius Equation. In essence, each 10°C (18°F) increase in temperature will

increase the reaction rates by a factor of two to four, depending on the activation energy for the reaction. The remediation volumes at the Lockformer site will be heated from a temperature of approximately 13°C (55°F) to a temperature of approximately 100°C (212°F).

5.1.3 Feasibility of Implementation

The ERH technology was identified as the only effective, practical and cost-effective approach for remediating the soils at this facility.

In the late 1980s, scientists at the U.S. Department of Energy's Pacific Northwest National Laboratories were tasked with the development of a technology to remove VOCs from low permeability soils. In response, these scientists invented ERH. Over the past ten years, ERH has become recognized as the best available technology for *in situ* VOC remediation of groundwater and soil of any type. However, ERH particularly excels in the low permeability soils it was originally developed for, soils similar to those found at the Lockformer facility.

ERH has been successfully demonstrated at two sites in Illinois. The remediation of contaminated soil at the former Lucent Technologies facility in Skokie (L0312880005—Cook County) has been completed using this process. The Lucent facility has soil conditions (silty-clay) that are similar to the Lockformer facility.

The technology has also been successfully applied by Clayton at an Avery Dennison facility in Waukegan, Illinois. A No Further Remediation Letter has been obtained from the Illinois EPA for that site.

5.1.4 Design and Technical Specifications

ERH Electrodes

The electrodes are designed to efficiently couple the electrical current to the soil and to direct the current to the region that requires treatment. THERMAL will install 83 ERH electrodes on approximately 17-feet spacing as shown in Figure 5.1-1. The spacing of the electrodes is based on prior experience. The electrodes will treat two separate areas. Area 1 measures about 9,307 square feet and Area 2 measures about 9,160 square feet. In Area 1, the electrically conductive electrode interval will extend from a depth of approximately 3 to 22.5 feet below grade surface (bgs). In Area 2, the electrically conducive interval will extend from approximately 10 to 24 feet bgs.

The electrodes will be constructed inside 12-inch-diameter boreholes and the electrically conductive interval will be backfilled with granular graphite or steel shot. Small quantities of Epsom salt (magnesium sulfate) are added to the conductive intervals to increase the electrical conductivity of soil immediately adjacent to the electrodes. Epsom salt, steel shot and graphite are non-hazardous and inert; electricians commonly use these materials in the installation of subsurface electrical grounding and cathodic protection systems. The non-conductive intervals at the top of the electrodes are backfilled with sand, to assist vapor recovery efforts, and cement grout to seal the electrode boreholes.

An electrically insulating CPVC oversleeve is also placed in the non-conductive upper region of the electrode. These oversleeves and a shallow soil grounding system are used to reduce the induced voltage at the surface to limit shock hazards. Electrode cross sections are shown in Figures 5.1-2 and 5.1-3 for Areas 1 and 2.

Type W extra-hard-use portable power cables are used to connect each on-service electrode to the ERH Power Control Unit. At start-up, about 200 to 250 volts will be applied and approximately 65 amperes of current supplied to each electrode, resulting in

the application of about 13 to 16 kilowatts (kW) of power to the soils near each electrode. The actual applied voltage will be determined by operational conditions and will be varied as the soil heats and subsurface resistance changes.

As the site is heated and boiling begins, soil moisture will be reduced. If the soil immediately adjacent to the electrode dries excessively, the electrical contact of the electrode with the soil will be degraded. This condition is commonly termed electrode dryout. THERMAL will add a small amount of water (2 to 3 gallons per hour) to each electrode to ensure that soil conductivity is not degraded. Some of this electrode wetting will come from excess water produced by the condenser; most of the electrode wetting supply will be potable water.

As shown in Figure 5.1-1 approximately 7 of the 43 electrodes to be installed in Area 1 are located within the building. The electrodes, and vapor recovery wells, will be installed in or below the concrete foundation. The foundation will be saw cut and the electrodes and vapor recovery system will then be installed. Installing the tops of the systems in vaults will provide access to the electrodes and vapor recovery wells. Electrical and process piping will be run outside of the building, through the side-wall of the foundation, using additional saw-cut runs. The floor of the facility will serve as the plenum.

The installation of the system inside the building will take no longer than 7 days. After the installation is complete, the area will be tested for any voltage leaks. Assuming the area meets the TRS specifications for voltage, workers will be allowed to resume use of the area.

Temperature Monitoring Points

For monitoring purposes, each treatment area will have four temperature monitoring points (TMP) as shown in Figure 5.1-1.

TMPs are typically located equidistant between electrodes, as this is the location with the slowest energy input.

Each TMP will have thermocouples installed at approximately 5-foot intervals to monitor subsurface temperature. The deepest thermocouple is typically located at the bottom of the treatment volume, and the shallow thermocouple will be located just above the top of the treatment volume. TMPs will be installed by either boring or direct push. Push installation is preferred because it results in less soil disturbance.

Thermocouple temperatures will be monitored and logged at least twice a week by THERMAL throughout the remediation. This data can be accessed remotely by modem.

Vapor Recovery Wells

Vapor recovery wells differ from vapor extraction wells in principal; however, they are similar to vapor extraction wells in practice. A vapor extraction well must be designed to drive airflow evenly through all soils in order to remediate them properly. An ERH vapor recovery well does not drive flow; the current between electrodes generates a uniform steam flow. A vapor recovery well intercepts the steam flow to prevent steam from venting to the surface and to prevent steam from migrating out of the treatment volume.

In Area 1, ERH electrodes will be installed to within 3 feet of the surface. Vapor recovery in Area 1 will consist of horizontal recovery wells placed on the ground surface, covered with a layer of permeable rock, beneath a plenum designed to help seal the treatment area and reduce heat loss to the atmosphere. As shown in Figure 5.1-2, the electrodes used in Area 1 will also have a vapor recovery vent. Vapors coming from this vent will be captured by the horizontal recovery wells.

In Area 2, ERH electrodes will terminate at approximately 10 feet bgs. Vapor recovery in Area 2 will be accomplished using vertical recovery wells constructed in the upper

(non-conductive) portion of the electrode boreholes. These wells will be constructed of 2-inch-diameter CPVC plastic casing with screened intervals extending from 3 to 8 feet bgs. Forty (40) vapor recovery wells will be installed in the electrode borings as shown in Figure 5.1-1. Figure 5.1-3 shows the vapor recovery vent that will be used in each electrode.

The size of vapor recovery header piping is specified in the following table:

Number of Wells Served	Pipe Diameter
1-2	2"
3-5	3"
6-12	4"
More than 12	6"

A plenum will be installed over the surface of the remediation area where TCE impact extends shallower than 4 feet bgs. The plenum serves three purposes:

- Limits heat loss to the surface to ensure that shallow soil is heated sufficiently for proper remediation.
- Assists the performance of the horizontal vapor recovery wells.
- Acts as a vapor cap to prevent the potential release of steam generated near the surface.

The plenum consists of the following components:

- Horizontal vapor recovery pipes at, or slightly below, the surface to recover any venting steam.
- An insulating component that acts as a heat loss barrier.
- A layer of gravel.
- Access to SVE wells and monitoring points.

- A rain cover to divert water away from the remediation area. Rain will be directed to the new storm sewer.

The ERH electrodes, temperature-monitoring points, vapor recovery wells, and plenum, where used, are collectively referred to as "the field."

Exclusion Zone Fence

The field is enclosed within a 6-foot-high chain link fence. The fence fabric is 11-gauge galvanized steel with top bar and bottom tension wire. If surface voltages indicate that entry into the field while it is energized is unsafe, the gate into the field will have an interlock to automatically deactivate the field if anyone tries to enter. The ERH condenser and the vacuum blower will continue to operate in this instance.

Condenser

The vapor recovery piping is routed to the ERH condenser where steam is converted to liquid water and separated from the recovered air and chlorinated solvents. The capacity of the condenser is compared with the requirements for the Lockformer site in the following table:

Parameter	Condenser Capacity	Required for Site
Steam Flow Rate	900 scfm	260 scfm
Air Flow Rate	300 scfm	120 scfm
Vacuum Rating	To 20" Hg	To 12" Hg

The condenser includes a mist eliminator to remove over 99 percent of water droplets that exceed 10 micron. An integral cartridge filter removes any particulate that might enter the condenser. The condensed water is pumped into a recirculation loop that cools the condenser. The recovered air and chlorinated solvents vapor exit the condenser and are conveyed to the vacuum blower.

Vacuum Blower

The minimum capacity of the vacuum blower will be 200 standard cubic feet per minute (scfm) at 15 inches of mercury vacuum. A 25-horsepower (hp) positive displacement (rotary lobe) blower will provide the required capacity. At present, it is intended to use a 25-hp rotary blower that will have spare capacity for this application. The discharge of the blower will be routed to the inlet of the primary 2,000-pound granular activated carbon (GAC) vessel, which will be connected in series to the secondary 2,000-pound GAC vessel. After passing through the secondary GAC vessel, the treated air stream will be discharged to the atmosphere through a 15-foot-high stack. Condenser water will be treated in two 55-gallon activated carbon units, operated in series, prior to discharge to the sanitary sewer.

ERH Power Supply

An ERH power control unit (PCU) is used to convert standard three-phase electrical power to the electrical phases required for site remediation. The PCU includes isolation transformers that force ERH current to flow between the electrodes only, and it is physically impossible for ERH current to flow to a distant electrical sink.

The ERH power control unit (PCU) is a skid-mounted unit with six individually controllable electrical phases. It is rated at a capacity of 500 kW; however, THERMAL anticipates that the average power input will be 325kW when shutdown periods and load balancing considerations are included.

The ERH power supply can be remotely monitored and controlled by modem connection and can be used to supply electricity to the condenser and the vacuum blower.

5.1.5 System Installation

Electrode, Vapor Recovery Well, and Temperature Point Installation

TMPs, electrodes, and vapor recovery wells in Area 1 will be installed first. Subsurface installations will require about three weeks to complete. Upon completion of construction activities, the exclusion zone fence will be installed.

Equipment and Piping Installation

Vapor recovery piping and the ERH remediation equipment will be installed by THERMAL. Air and water discharge piping will be connected to header pipes leading to the water and air treatment systems. Details of these systems are provided in Sections 5.2.3.10 and 5.2.3.11. A local electrical contractor will connect the ERH power supply to the utility grid. THERMAL will connect the TMPs and the electrodes in Area 1 to the ERH PCU. This phase will require about three weeks to complete.

Testing and Start-up

THERMAL will test all safety interlocks and then apply a low voltage (typically about 50 volts) to the on-service ERH electrodes. The induced voltage will be measured at locations throughout the field and along the border of the exclusion zone. Special attention is paid to locations where the possibility for induced voltages to reach the surface is the highest. Locations with voltages in excess of one volt are logged and noted on a plot plan. THERMAL will recheck these locations as the voltage applied to the field is slowly increased. THERMAL policy will not allow a step-and-touch potential greater than 15 volts at any point outside of the exclusion zone.

The testing and start-up phase will require about two weeks. Once the field is at operating voltage, THERMAL periodically rechecks the applied voltage at the surface, especially when on-service electrodes change or when significant applied voltage increases are planned.

5.1.6 Time Frame to Achieve Remedial Objectives

Treatment Area 1 will be remediated first, followed by treatment Area 2. At initial ERH start-up, approximately half of the 43 ERH electrodes in Area 1, will be placed on service. The remaining electrodes in Area 1 will be brought on-line as the remediation progresses.

It will require about 25 to 30 days of operation to heat half of Area 1 to the boiling point of water (80 to 100 degrees C, depending on the vacuum applied by the vapor recovery system). Heat-up of each half of Area 1 will be slowed slightly by the volatilization of TCE, which removes heat from the surface.

By day 60 of operations, all the electrodes in Area 1 will have been placed in service. By this time, some electrodes will already be disconnected because extracted vapor concentrations indicate that these regions are clean. It is estimated that 170 to 180 days of total operation will be required to complete Area 1 remediation.

Once Area 1 has been completed, heating will start in Area 2. Because the treatment volume in Area 2 is less than the treatment volume in Area 1, all 40 electrodes in Area 2 will be placed in service at once.

It will require about 40 to 50 days to heat Area 2 to the boiling point of water (80 to 100 degrees C, depending on the vacuum applied by the vapor recovery system). It is estimated that 115 to 125 days of operation will be required to complete Area 2 remediation.

5.1.7 Project Management

Clayton and THERMAL will complete the remediation of the Lockformer property. First Environmental Laboratories will perform all soil sample chemical analysis. Key individuals and their responsibilities are as follows:

Lockformer Project Manager

Mr. Arthur Boulard will be the Lockformer Project Manager for this project. He has general oversight and project management responsibilities. He is responsible for completing the project to the satisfaction of the Agency and meeting the remediation goals and objectives.

Clayton Project Coordinator

Mr. Ron St. John will serve as the overall Project Coordinator for Clayton. Mr. St. John will be responsible for the overall project and coordination between efforts. Mr. St. John will be responsible for all communication and reporting to USEPA on the Lockformer project.

Clayton Field Project Manager

Mr. William Elwell will serve as the Clayton Field Project Manager. In his role as Field Project Manager, Mr. Elwell will be responsible for coordination of the remediation activities. He will be responsible for implementation, scheduling, and integration of the various technical disciplines that will be required during the remediation activities.

Clayton Project Quality Control Officer

Dr. Hank Mittelhauser will serve as the Project Quality Control Officer. Dr. Mittelhauser will provide general oversight and guidance to the Clayton Management team. He will review the findings and evaluations of the project.

THERMAL Managers

Mr. Greg Beyke will be the lead Engineer, Jerry Wolf will be the THERMAL Project Manager, and Tom Powell will be the Site Manager.

First Environmental Laboratories Project Manager

Mr. William Mottashed will serve as the First Environmental Laboratories Project Manager. Mr. Mottashed will be responsible for coordinating laboratory analyses and will provide an overview of final analytical reports.

First Environmental Laboratories QA/QC Officer

Ms. Lorrie Franklin will serve as the First Environmental Laboratories QA/QC Officer. Ms. Franklin will be responsible for overview of laboratory QA/QC procedures, overview of QA/QC documentation, conduct of detailed audits, approval of laboratory corrective actions (if required), technical representation of laboratory QA procedures, and will provide an overview and approval of final analytical reports.

5.1.8 Construction QA/QC

Greg Beyke (THERMAL) is responsible for overall construction coordination. William Elwell will be responsible for in-field coordination of construction efforts, cost control, and scheduling. Jerry Wolf (THERMAL) is responsible for ERH equipment maintenance and repair. Tom Powell (THERMAL) is responsible for field supervision, sampling, chemistry, and routine operations.

The principle subcontractors for this project include:

- A drilling contractor for electrode boring and SVE well installation.
- A hydraulic push rig contractor for temperature boring installation.
- An electrical contractor for connection of the ERH equipment to the utility grid.

One of the above THERMAL employees will supervise all subcontracted work. All construction will be verified to be in accordance with this work plan prior to sign-off.

All operational and safety interlocks will be tested prior to start-up. A logbook will be used to record all site activities. This logbook will be signed and dated daily when entries are made.

5.2 SOIL VAPOR EXTRACTION

This section describes the feasibility, installation, and operation of the SVE systems that will be used to remediate residual TCE concentrations present in the Mass Waste Sand and Gravel and fine-grained soils surrounding the vapor degreaser. The use of SVE has been widely accepted by regulators and proven as an effective *in situ* remediation technology. This *in situ* technology is very effective in removing contaminants with moderate to high vapor pressures and subsurface soils and bedrock with moderate to high permeabilities. The use of SVE to remove the TCE within the Mass Waste Sand and Gravel and fine-grained soils surrounding the vapor degreaser at the Lockformer property is the most practical and feasible remedial approach.

The ROs for TCE in the Mass Waste Sand and Gravel is 0.060 mg/kg. The completion of remediation will be based on an evaluation of the removal efficiency of TCE and conducting confirmation sampling (Section 6.0). Confirmatory samples will be collected at various locations and depths to properly demonstrate remediation objectives have been met. The samples to be analyzed will need to show a 95 percent confidence level to be considered to have met the remediation objective.

The design of the SVE system for the Mass Waste Sand and Gravel will be based on the performance of a pilot test. A pilot test will be performed for a period of one to two weeks to obtain design data for the full-scale system and air treatment system. Details of

the pilot test and design, construction, operation, and maintenance of the full-scale SVE systems are described in the following sections.

5.2.1 Performance and Reliability of Technology

The process of SVE involves inducing a pressure gradient by withdrawing or injecting air through a well or network of wells to move air through the pore spaces within the unsaturated zone. Contaminants in the vapor phase are captured and removed by the advective transport of air through the subsurface. The process of SVE removes contaminants from the subsurface by causing dis-equilibrium between the various phases and transferring the mass of volatile contaminants adsorbed on soil particles, residual liquids (i.e., NAPLs and DNAPLs) and contaminants dissolved in pore water into the vapor phase. As time progresses, the contaminant mass is steadily decreased until contaminants are totally removed or concentrations are decreased below an established cleanup standard.

5.2.2 Feasibility of Implementation

The two most important factors for evaluating the feasibility of SVE are soil and chemical properties. Soil properties include texture, porosity, saturation (i.e., moisture content), wetting and non-wetting phases, residual water saturation, residual NAPL/DNAPL saturation, capillary pressure, and permeability. Permeability of the subsurface materials is the most important soil property when evaluating the feasibility of SVE. Chemical properties of the contaminants include vapor pressure, Henry's Law Constant, boiling point, soil adsorption coefficient, and solubility. The most important chemical properties for evaluating the feasibility of SVE include vapor pressure, Henry's Law Constant, and boiling point.

The vapor pressure of a contaminant is defined as its tendency to volatilize or evaporate. Contaminants that exhibit vapor pressures greater than 0.5 mm Hg can be expected to volatilize to a large degree. Henry's Law Constant is the tendency for a contaminant to partition and volatilize from water. Contaminants with Henry's Law Constants greater than 0.01 (dimensionless) exhibit a tendency to volatilize from water. The boiling point of a contaminant is defined as the temperature at which a chemical's vapor pressure is equal to the atmospheric vapor pressure under standard conditions. The boiling point of a contaminant will decrease when the pressure in the subsurface is decreased by the presence of a vacuum. Consequently, the boiling point of the contaminant will decrease, and its tendency to volatilize will increase.

The Mass Waste Sand and Gravel ranges in thickness from 14 to 20 feet and consists of deposits of fine- to coarse-grained sand and gravel. The silt and clay content of this unit is less than 10 percent. This stratigraphic unit contains concentrations of TCE ranging from less than 0.005 mg/kg to 51 mg/kg. The vapor pressure, Henry's Law Constant, and boiling point for TCE are 57.8 mm Hg at 25° C, 0.422 (dimensionless) at 25° C, and 87° C, respectively. The thickness, geometry, and permeability of the Mass Waste Sand and Gravel and the chemical properties for TCE suggest that implementation of SVE will successfully achieve remediation objectives for this portion of the site.

Although SVE has gained wide acceptance in the regulatory community as a proven remediation technology, a pilot test will be performed to obtain data for the design of the full-scale SVE system that will be used to remediate the Mass Waste Sand and Gravel. The data obtained from the pilot test will be used to design the system configuration and air treatment system. Details of the pilot test and the data used for the full-scale system design are described in Section 5.2.1.1.

5.2.1.1 Pilot Test

A 1- to 2-week pilot test will be performed at the Lockformer site to obtain site-specific parameters and provide the basis of design for the full-scale SVE system used to remediate the Mass Waste Sand and Gravel. One vapor extraction well and four multi-point monitoring probes will be installed near the former fill port located on the western side of the facility building. The borings for the extraction well and multi-point monitoring probes will be drilled to the base of the Mass Waste Sand and Gravel (approximately 40 to 50 feet bgs) using hollow stem augers. A boring for a single-point monitoring probe will also be drilled to within 2 feet of the base of the Surficial Silty Clay Till and Fill. The monitoring probes will be installed at radial distances of 20, 50, 75, and 100 feet from the vapor extraction well. These probes will be used to measure the subsurface vacuum response during the pilot test and then be used to evaluate the radius of influence, well spacing, and number of extraction wells to be used for the full-scale remediation system. The probes completed in the Silty Clay Till will be used to evaluate if there is any pneumatic connection between the lower portion of the Silty Clay Till and the Mass Waste Sand and Gravel.

The location of the pilot test well and monitoring probes is shown in Figure 5.2-1. After the pilot test is completed, the extraction well and monitoring probes will be incorporated into the full-scale SVE design.

The vapor extraction well will be constructed of 4-inch ID, galvanized steel pipe and stainless steel well screen. The use of steel materials will be necessary to withstand the heat generated by the ERH remediation within the Surficial Silty Clay Till and Fill during the full-scale remediation. The length of the well screen will be 15 to 20 feet to provide air withdrawal along the entire thickness of the Mass Waste Sand and Gravel. The well screen will consist of continuously wire wound, 0.020-inch openings. The construction details of the vapor extraction well are shown in Figure 5.2-2. The multi-point

monitoring wells will be constructed of 1-inch-diameter galvanized pipe and screen. The screen for each probe will be one foot in length with 0.010-inch openings. Three monitoring probes will be placed in the borehole such that the well screens will be located in the upper, middle, and lower portion of the Mass Waste Sand and Gravel. The well screen for the single-point monitoring probes will be placed 2 feet above the elevation of the base of the Surficial Silty Clay Till and Fill. The construction details of the multi-and single-point monitoring probes are shown in Figure 5.2-3.

The vapor extraction well and monitoring probes will be completed approximately 0.5 feet below the ground surface. A flush-mounted cover will be placed over the extraction wells and monitoring probes. For the full-scale SVE system, the flush-mounted well covers for the pilot test SVE well and monitoring probes will be removed, and the well pipe extended above the ground surface.

A mobile or trailer-mounted SVE unit will be used for the pilot test. The SVE unit will be situated next to the extraction well and will consist of a low vacuum/high airflow vacuum blower, a condensation tank and automatic drain pump, a silencer, an air dilution valve (ADV), and ancillary piping and gauges. An equalization tank will also be used to collect water discharged from the condensation tank. The exhaust stack of the SVE unit will be connected to a 500-pound carbon canister to treat the air discharge during the test. The vacuum blower for the SVE unit will generate maximum flow rates of 500 cfm and vacuum levels up to 10 inches of Hg. The ADV on the SVE unit will be adjusted to change the airflow conditions at various times during the test to evaluate the change in field parameters.

The power for the SVE unit will be obtained from a temporary electrical box connected to the facility power supply.

To limit noise generated during the pilot test, a silencer will be placed on the discharge stack, and bails of hay will be placed along the sides of the SVE unit.

Field and operating parameters will be monitored at regular intervals during the operation of the pilot test SVE unit. The SVE unit will be operated at three different vacuum levels in order to measure the parameters under varying airflow conditions. The SVE unit will be operated at each vacuum level until operating and field parameters stabilize.

The operating and field parameters measured during the pilot test will include vacuum and total airflow rate at the SVE unit, airflow rate at the extraction well, exhaust temperature, relative organic vapor concentration at the exhaust stack and extraction well, and vacuum response at each monitoring probe. Two air samples will be collected for laboratory analysis during each of the three test phases. The air samples will be collected using a Summa-type canister and analyzed for VOCs by USEPA Method TO-14. All data will be recorded on data sheets and in the field logbook.

The pilot test data will be evaluated and summarized in a report. The vacuum level, total airflow rate, and exhaust temperature data will be used to evaluate the performance of the vacuum blower relative to the varying flow and subsurface conditions. The relative vapor concentration and air sample analytical data will be used to evaluate the mass removal rate of TCE and the loading of the carbon units. This data will also be used to determine the duration of remediation and to size the GAC air treatment units.

The vacuum response data will be analyzed to evaluate the airflow conditions in the Mass Waste Sand and Gravel and the radius of influence of the extraction well. This data will be used to determine the number and spacing of the extraction wells for the full-scale remediation system.

5.2.1.2 Degreaser Area

TCE in the fine-grained disturbed soils surrounding the degreaser occurs primarily from 1.5 to 6 feet below the facility floor. The vertical extent of TCE in the degreaser area is limited and suggests that contaminants spread laterally through the disturbed soils underlying the facility flooring. The ability for TCE to spread laterally as opposed to vertically suggests the presence of preferred pathways of migration. Because of these preferred pathways, SVE will be a feasible approach for remediating the disturbed and native soils surrounding the degreaser. The use of other remedial alternatives would be less feasible or not technically practicable because of the limited accessibility and operations near the degreaser area.

5.2.3 Design and Technical Specifications

The SVE remediation system for the Mass Waste Sand and Gravel will consist of a network of vertical vapor extraction (VE) wells and monitoring probes, process piping, a condensation tank, vacuum blower, fluid transfer pump, equalization tank, and silencer. A conceptual layout of the full-scale SVE systems is shown in Figure 5.2-4. The final number of extraction wells and well spacing for the Mass Waste Sand and Gravel remediation system will be based on the results of the pilot test.

The SVE remediation system for the degreaser will consist of six horizontal extraction wells, process piping, a condensation tank, vacuum blower, fluid transfer pump, equalization tank, and silencer. The conceptual layout of the horizontal extraction wells is shown in Figure 5.2-5. A cross-section view of the horizontal extraction wells and degreaser is shown in Figure 5.2-6.

The SVE, air treatment, and water treatment units will be located within the southwestern portion of the facility building (Figure 5.2-4). This area will be designated as the

Remediation Equipment Area. A curbed area will be constructed around the perimeter of the Remediation Equipment Area to provide spill containment. Details of the components for both SVE systems are described in the following sections.

5.2.3.1 Vertical Vapor Extraction Wells

Vapor extraction wells must be designed to move air evenly through all soils in order to remediate them properly. The extraction wells used to remediate the Mass Waste Sand and Gravel must also be able to withstand the heat generated by the ERH remediation system. The final number and spacing of the VE wells will be based on the results of the pilot test (Section 5.2.1.1).

Each vapor recovery well will be constructed with 4-inch galvanized steel riser pipe and stainless steel well screen, and placed in a 12-inch-diameter borehole. The galvanized steel riser pipe transfers into CPVC materials prior to daylighting. The screened interval for the VE wells will range from 15 to 20 feet depending on the thickness of the Mass Waste Sand and Gravel. A diagram of a typical VE well is shown in Figure 5.2-7.

A filter pack of appropriate grade will be placed from the base of the borehole to 1-foot above the well screen. A 2-foot bentonite seal consisting of bentonite pellets will be placed on top of the filter pack and hydrated with water. The remaining annular space will be sealed with grout to the ground surface.

The VE wells will be completed above the ground surface. A T-fitting will be attached to the top of the well. A cap will be placed on the top of the T-fitting and a horizontal process pipe consisting of CPVC will be connected to a 4-inch ID CPVC header pipe. The CPVC materials will be used to prevent electrical shock from the ERH remediation system. A CPVC ball valve will be placed along the process pipe between the VE well and header pipe. At least three header pipes will be used to connect all of the VE wells.

The final number of wells and header pipes will be based on the results of the pilot test. The header pipes will be stubbed and manifolded inside of the Remediation Equipment Area located in the southwest portion of the facility building.

A portion of the VE wells, and process and header pipes, along with the ERH horizontal extraction wells, on the ground surface will be covered with a layer of gravel. The gravel layer will be necessary to capture the steam generated by the ERH remediation system (Section 5.1). A plenum will be placed over the gravel to capture the steam and to limit infiltration from precipitation. The VE wells and process piping not covered by the plenum will be heat traced to limit water condensation and possible freezing during winter months of operation.

In the area of the plenum, each VE well and ball valve will be accessed by removing a square cover, of similar insulation material, placed over the well. The wells will need to be accessed to measure vacuum or to manipulate the ball valve to adjust the vacuum level at the extraction well. The other wells can be accessed directly outside of the plenum area.

5.2.3.2 Horizontal Extraction Wells

After the degreaser is removed, six horizontal extraction wells will be installed in the disturbed and natural soils using horizontal drilling techniques. The boreholes will be in a horizontal fashion to install the wells approximately 3 to 4 feet below the facility floor. Openings with dimensions of 3-feet by 3-feet will be saw-cut into the sides of concrete vault. The horizontal wells will consist of 4-inch ID, Schedule 40 PVC pipe. The pipe will be pre-slotted with an opening size of 0.020 inches. The length of the screened interval will depend on the extent of TCE in the surrounding disturbed and native soils.

One end of the horizontal extraction wells will be stubbed inside the concrete vault and manifolded to a 4-inch ID PVC header. The other end will be capped and placed approximately 3-feet below the facility floor. Both ends of the borehole will be sealed with a bentonite collar followed by a 1-foot-thick plug of concrete. The header will be connected to a separate SVE unit located in the Remediation Equipment Area inside the facility.

5.2.3.3 Monitoring Probes

Several multi-point monitoring probes will be installed within and outside the extraction well array to monitor subsurface vacuum and the performance of the Mass Waste Sand and Gravel SVE unit. The total number of monitoring probes will be based on the results of the pilot test. Four single-point monitoring probes will also be installed in the degreaser area to monitor vacuum in the disturbed and native soils.

The monitoring probes will be constructed of 1-inch ID galvanized pipe and screen. The well screen will be 1-foot in length with 0.010-inch slotted openings. The well screens for the multi-point monitoring probe will be placed in the same borehole. The depth of the well screens will be in the upper, middle, and lower portion of the Mass Waste Sand and gravel. The single-point monitoring probes well screens in the degreaser area will be placed 3 to 4 feet below the facility floor.

A filter pack consisting of an appropriate grade of sand will be placed along the screened interval up to 1 foot above the top of the well screen. A 2-foot seal consisting of bentonite pellets hydrated with water will be placed over the filter sand. This sequence will continue for the multi-point monitoring probe well screens up to the top of the Mass Waste Sand and Gravel. The remaining annular space along the Surficial Silty Clay Till and Fill will be filled with grout.

The multi-point monitoring probes will be completed 6 inches above the ground surface. A section of 1-inch PVC pipe will be attached to the top of the metal pipe to limit shock hazard. The single-point monitoring probes will be completed approximately 6 inches below surface grade. Quick connect fittings will be attached to the top of each monitoring probe to connect tubing to a vacuum gauge during monitoring. The probes in the degreaser area will be covered with a flush-mounted well cover that will be set in concrete.

5.2.3.4 Condensation Tank

The process piping for each SVE system will be routed to a condensation tank where water is separated from the process air. The capacity and the design specifications for the condensation tank for the Mass Waste Sand and Gravel SVE unit will be based on the results of the pilot test.

The condensation tanks will include a mist eliminator to remove over 99 percent of water droplets that exceed 10 micron. The water collected in each tank will be pumped into an equalization tank by an automatic transfer pump. This water will then be pumped through a water treatment system consisting of carbon adsorption units (Section 5.2.3.10) prior to discharge to the sanitary sewer.

5.2.3.5 Vacuum Blower

A low vacuum/high airflow blower will be used for the Mass Waste Sand and Gravel SVE system. The specification for the blower will be based on the results of the pilot test. A blower with an airflow rate of 300 to 500 cubic feet per minute and a vacuum of less than 10 inches Hg will be adequate for the SVE system used to remediate the Mass Sand and Gravel.

A high vacuum/low airflow blower will be used for the degreaser area. The blower for this SVE system will be designed to generate vacuum levels up to 15 inches Hg and airflow rates of at least 100 cfm. A liquid ring pump will be considered for use to remediate this area.

5.2.3.6 Transfer Pump

Transfer pumps will be used for both the SVE systems to remove water from the condensation tanks and transfer water to an equalization tank. Activated by a series of float and relay switches, the SVE transfer pumps will transfer water to the equalization tank. A secondary pump located in the equalization tank will discharge water to the water treatment unit when activated by a float switch.

5.2.3.7 Equalization Tank

A 500-gallon equalization tank for the combined discharge from the SVE condensation tanks will be constructed of polypropylene. The tank will be used to temporarily store water prior to discharge to the water treatment unit. A discharge or sump pump will be placed in the equalization tank to transfer water for treatment. The equalization tank will be situated within a secondary containment structure. A process flow diagram is shown in Figure 5.2-8.

5.2.3.8 Silencer

Silencers will be placed on the air discharge stack of the SVE systems to limit the noise levels produced during operation. The silencers will be specified to comply with village noise ordinances.

5.2.3.9 SVE Power Supply

The power supply for the SVE units will be obtained from the from the power supply at the facility. The SVE units will require a power supply that is 3-Phase, 230/460 Volts, and a minimum of 200 amperes circuits. A separate circuit box will be installed for each SVE unit.

5.2.3.10 Water Treatment System

The discharge pipes for the ERH remediation system and the SVE units will be connected to a single header leading to the water treatment system. A process flow diagram is shown in Figure 5.2-8.

The water treatment system will consist of two 500-pound GAC units placed in series. The discharge from the ERH remediation system and SVE units will be treated by the carbon adsorption units prior to discharge to the sanitary sewer. Water samples will be collected periodically from sample ports located before the first carbon unit, in between the two carbon units, and after the last carbon unit. The samples will be analyzed for VOCs to monitor discharge and contaminant breakthrough. Details of the water sampling are discussed in Section 5.3.

5.2.3.11 Air Treatment System

The air discharge pipes for the ERH Remediation System and SVE units will be connected to a single header leading to the air treatment system. A process flow diagram is shown in Figure 5.2-8.

The air treatment system will consist of two 2,000-pound GAC units placed in series. Air samples will be periodically collected at sample ports located at the discharge stack for

each SVE unit, prior to the first carbon unit, in between the two carbon units, and after the last carbon unit. The air samples will be analyzed for VOCs to monitor air discharge and identify when breakthrough occurs. Details of the air sampling are discussed in Section 5.4.

5.2.4 System Installation

Vapor and Horizontal Extraction Wells

The vertical and horizontal extraction wells, and monitoring probes will be installed first. The drill cuttings will be placed on the ground surface and treated beneath the plenum for the ERH remediation system. The total number of vertical extraction wells and multi-point monitoring probes will depend on the results of the pilot test.

Process Piping and Equipment Installation

Process piping, headers, and the remediation equipment will be installed by the remediation construction contractor. The SVE systems, air treatment units, and water treatment unit will be located within the southwestern portion of the facility building (Section 5.2-4). The water and air discharge piping for the ERH Remediation system and the SVE units will be connected to individual headers for discharge to the water and air treatment units, respectively.

After the wells and process piping are installed, the contractor will install an exclusion zone fence surrounding the ERH Remediation Area.

A local electrical contractor will install all of the electrical conduit and wiring, and connect the SVE systems and ancillary components to the facility power supply.

Testing and Start-up

The remediation construction and electrical contractor will test all the components and electrical connections. After the initial system check is complete, the SVE units will be operated with the ADVs in the open position. Ambient will be air drawn through the SVE units. After the equipment components and connections are checked out, the ADVs will be closed. Clayton personnel will monitor the operating parameters of the SVE units and vacuum levels at the monitoring probes. After the parameters stabilize, Clayton will adjust the valves at each extraction well to ensure the entire extent of TCE in the subsurface soils is within the radius of influence of the wells.

During startup testing, air samples will be collected using Summa-type canisters prior to and after the air treatment units. The samples will be submitted for laboratory analysis of VOCs to determine initial vapor concentrations of TCE. Based on these results, the discharge rate of the SVE units will be adjusted so that the air discharge is within permitted limits.

5.2.5 Operation and Maintenance

The SVE units will be operated on a continual basis until the removal rate of each unit reaches less than 0.5 pounds per day. At that time, Clayton will begin pulsed operation of the SVE system. Pulsed operation is more efficient in removing the final portion of residual contaminants from the subsurface soils than operating the SVE system continuously. The pulse mode of operation allows the residual contaminants adsorbed to the soil particles to volatilize and re-equilibrate with the contaminants in the pore vapor. When the SVE system is restarted for a limited period, the pore vapor is removed and the SVE system is turned off. This process will be repeated until remediation is completed. Pulsed operation of the Mass Waste Sand and Gravel SVE unit will be conducted for 6 months prior to confirmation sampling. Pulsed operation of the Degreaser Area SVE

unit will be conducted for a minimum of 6 months prior to confirmation sampling. The SVE systems will be operated 1 week each month during pulsed operation.

Surveillance on the SVE units will be performed on a daily basis during the first 6 months of operation by Lockformer personnel. Clayton personnel will perform any maintenance necessary. After this time, maintenance will be performed on a weekly basis by Clayton personnel. Maintenance will also be performed to troubleshoot any unforeseen equipment malfunction(s). The maintenance schedule will be coordinated with the air and water sampling schedules.

Maintenance will include checking the operation of the SVE system and electrical components, tightening belts, greasing the bearings and changing the oil in the blowers and transfer pumps, etc. Clayton will prepare an Operation and Maintenance Manual prior to the startup of the SVE units. The manual will be kept onsite along with maintenance logs and datasheets.

5.2.6 Time Frame to Achieve Remedial Objectives

Based on past experience with chlorinated solvents in permeable unsaturated soils, the recovery rate of the SVE will experience an asymptotic decline in contaminant removal within approximately 18 months of startup. The exact time frame will depend on subsurface conditions (i.e., moisture content, the presence of DNAPL, etc.). The SVE system will be operated in pulse mode after the asymptotic decline in mass recovery occurs. The pulse mode of operation will continue until no significant mass recovery occurs over a 3-month period. At that time, Lockformer will prepare a technical memo that outlines the recovery efforts, and requests that the system be shut down due to the practical limitations of the technology being reached. Upon approval by USEPA, Lockformer will then perform confirmatory sampling in the mass waste sand and gravel.

The time frame to remediate the fine-grained soils surrounding the degreaser area will depend on the mass of TCE in the soil and the quantity of preferred pathways. A conservative estimate to achieve cleanup goals in this area would be less than 3 years. After it is apparent that no further contaminant recovery is available from the soils in the degreaser area, a similar process to that described for the mass waste sand and gravel will be utilized for system shutdown. This will include a request to the USEPA, a written response from the USEPA granting system shutdown, and confirmatory sampling.

5.2.7 Project Management

Clayton Group Services, Inc. and a remediation construction contractor will complete the remediation of the Lockformer property. First Environmental Laboratories in Naperville, Illinois will perform chemical analysis of all soil samples. All air samples will be analyzed by Performance Analytical Inc. in Simi Valley, California. Key individuals and their responsibilities are as follows:

Lockformer Project Manager

Mr. Arthur Boulard will be the Lockformer Project Manager for this project. He has general oversight and project management responsibilities. He is responsible for completing the project to the satisfaction of the Agency and meeting the remediation goals and objectives.

Clayton Project Coordinator

Mr. Ron St. John will serve as the overall Project Coordinator for Clayton. Mr. St. John will be responsible for the overall project and coordination between efforts. Mr. St. John will be responsible for all communication and reporting to USEPA on the Lockformer project.

Clayton Field Project Manager

Mr. William Elwell (Clayton) will serve as the Project Field Manager. In his role as Field Project Manager, Mr. Elwell will be responsible for coordination of the remediation activities. He will be responsible for implementation, scheduling, and integration of the various technical disciplines that will be required during the remediation activities.

Project Quality Control Officer

Dr. Hank Mittelhauser (Clayton) will serve as the Project Quality Control Officer. Dr. Mittelhauser will provide general oversight and guidance to the Project Coordinator. He will review the findings and evaluations of the project.

Clayton Field Manager

Mr. John Wolski (Clayton) and the remediation construction supervisor will serve as the remediation Field Manager. Both managers will be responsible for overseeing the field activities.

First Environmental Laboratories Project Manager

Mr. William Mottashed will serve as the First Environmental Laboratories Project Manager. Mr. Mottashed will be responsible for coordinating laboratory analyses and will provide an overview of final analytical reports.

First Environmental Laboratories QA/QC Officer

Ms. Lorrie Franklin will serve as the First Environmental Laboratories QA/QC Officer. Ms. Franklin will be responsible for overview of laboratory QA/QC procedures, overview of QA/QC documentation, conduct of detailed audits, approval of laboratory corrective actions (if required), technical representation of laboratory QA procedures, and will provide an overview and approval of final analytical reports.

Performance Analytical Inc. Project Manager

Ms. Kate Aguilera will serve as the Performance Analytical Inc. Project Manager. Ms. Aguilera will be responsible for coordinating laboratory analyses and will provide an overview of final analytical reports.

Performance Analytical Inc. QA/QC Officer

Ms. Lynn Fulks will serve as the Performance Analytical Inc. QA/QC Officer. Ms. Fulks will be responsible for overview of laboratory QA/QC procedures, overview of QA/QC documentation, conduct of detailed audits, approval of laboratory corrective actions (if required), technical representation of laboratory QA procedures, and will provide an overview and approval of final analytical reports.

5.2.8 Construction QA/QC

The Clayton Field Manager and remediation construction supervisor will be responsible for overall construction coordination, reporting to the Clayton Project Manager, scheduling, equipment installation and testing. These field supervisors will also be responsible for field supervision, testing, and routine operations.

The principle subcontractors for this project include:

- A drilling contractor for SVE well and monitoring probe installation.
- A remediation construction contractor for process pipe installation, and pipe integrity testing. The contractor will also be responsible for assembly of the SVE equipment, equalization tank, air and water treatment units, and ancillary piping.
- An electrical contractor for connection of the electrical conduit and wiring for the SVE equipment.

The Clayton Field Manager will supervise all subcontracted work. All construction will be verified to be in accordance with this work plan prior to sign-off.

A logbook will be used to record all site activities. This logbook will be signed and dated daily when entries are made. All construction work will be performed under the Site Health and Safety Plan.

5.3 WATER DISCHARGE MONITORING

The water treatment system consists of two 500-pound carbon units placed in series. The treated water from this system will be discharged to the sanitary sewer after treatment. Water samples will be collected on a regular basis from sample ports located prior to, in between, and after the carbon adsorption units. The water samples will be analyzed for VOCs (Method 8260) to evaluate the treatment efficiency of the carbon units, when to change out a carbon unit, and to demonstrate compliance with any discharge permits.

Water samples will be collected on a weekly basis for the first month of operation and bi-monthly for the next three months. After that time, water samples will be collected on a monthly basis.

5.4 AIR MONITORING

5.4.1 Remediation and Air Treatment Systems

Air sampling will be performed at the discharge stacks for the ERH remediation system and SVE units to evaluate and monitor the removal of TCE from the subsurface soils. Air monitoring will be performed at the discharge stack for the common air treatment unit to evaluate compliance with the air permit. Air samples will be collected at the discharge stack for each remediation unit, and prior, in between, and after the carbon adsorption

units. The samples will be collected on a weekly basis for the first month of operation and twice monthly for the next 3 months of operation of the ERH remediation system and SVE units. After that time, air samples will be collected on a monthly basis until the completion of remediation. The air samples will be collected using Summa-type canisters and analyzed for VOCs by USEPA Method TO-14.

5.4.2 Ambient Air Monitoring

Ambient air monitoring will be performed at various locations along the perimeter of the property to monitor air emissions leaving the site after remedial measures at the site are initiated. The ambient air will be monitored to evaluate the concentration of fugitive VOC emissions released from the remediation area and the discharge stack of the air treatment unit. Air monitoring will be used to demonstrate that discharges from the remediation activities will not threaten human health.

As part of field implementation of this RAWP, Clayton will perform ambient air monitoring. The purpose of the ambient air monitoring will be to (1) identify and quantify airborne levels of VOCs, and (2) present actions that may be implemented to mitigate health hazards should VOCs exceed acceptable levels. Details of the ambient air monitoring are summarized below.

Perimeter sampling for VOCs will be located at four fixed locations to the north, south, east, and west of the remediation area. These locations represent potential downwind directions where residential areas are located. The annual mean prevailing wind direction in the Chicago area is towards the northeast based on a climatological database.

Fixed air monitoring stations will be established at the locations identified in Figure 5.4-1. The stations will be constructed, so that they can be easily moved in the event that this becomes necessary. Each station will facilitate the use of a 24-hour Organic Vapor

Monitor (OVM). The OVM provides a time-weighted average concentration over the period of exposure.

Clayton personnel will collect and employ new OVMs in the air monitoring stations on a daily basis for the first 3 months of site remedial activities. After this start-up period is concluded, the OVMs will be deployed once a week for air monitoring purposes for the remainder of the removal action.

After the first 3 months of remediation system air monitoring is complete, Clayton will evaluate the air sampling data and provide recommendations for either continuing as is or modifying the air monitoring. Clayton will evaluate the first quarter air data and make recommendations to the USEPA about further monitoring.

If VOC concentrations in the air samples exceed acceptable levels, the plenum for the ERH remediation system and the discharge process piping will be scanned with a PID to locate the source of any fugitive emissions. When the emission source is identified, corrective action measures will be taken. Corrective action measures may include, but not be limited to, installing more horizontal extraction wells beneath the plenum, increasing the size of the plenum, or replacing the carbon in the air treatment units.

5.5 TREATMENT SYSTEM INSTALLATION DERIVED WASTES

The installation of the ERH remediation and SVE systems will generate the following treatment-derived wastes: soil from drill cuttings, water from soil moisture (extracted as water vapor), and non-hazardous miscellaneous waste. Secondary waste generated during the treatment of the air emissions from both the ERH remediation and SVE systems will include granulated activated carbon (GAC).

5.5.1 Drill Cuttings

Drill cuttings will be handled as described in Section 4.8.2.

5.5.2 Water from Soil Moisture

A portion of the inherent moisture content of the Surficial Silty Clay Till and Fill and the Mass Waste Sand and Gravel deposit will be removed by the ERH remediation and SVE process.

Moisture in the Mass Waste Sand and Gravel will be removed as water vapor as it travels through the network of extraction wells, process piping, and through the SVE condensate separator. As collected steam and air passes through the ERH condensers and SVE condensation tanks, water will collect and be transferred via a transfer pump into a 500-gallon equalization tank. This water will then be pumped through two 500-pound carbon adsorption units placed in series.

5.5.3 TCE Vapor Emissions

About 1 percent of the mass of TCE in the process air will be emitted from the ERH remediation and SVE systems in conjunction with water vapor. The remaining 99 percent will be emitted from vacuum blower stacks.

Air emissions from the combined ERH remediation system and SVE units will be connected to one discharge header and treated by two 2,000-pound GAC units placed in series. The emissions from the GAC treatment system will not exceed the specified limits in the air permit obtained from the IEPA.

5.5.4 Used Carbon

When the adsorptive capacity of the carbon unit is no longer available, the carbon unit will be replaced with either the second carbon unit in series (i.e., air treatment unit) or an entirely new carbon unit. The used carbon will be disposed offsite as a hazardous waste. The frequency of carbon removal will be determined after the first 3 months of operation of the remediation systems.

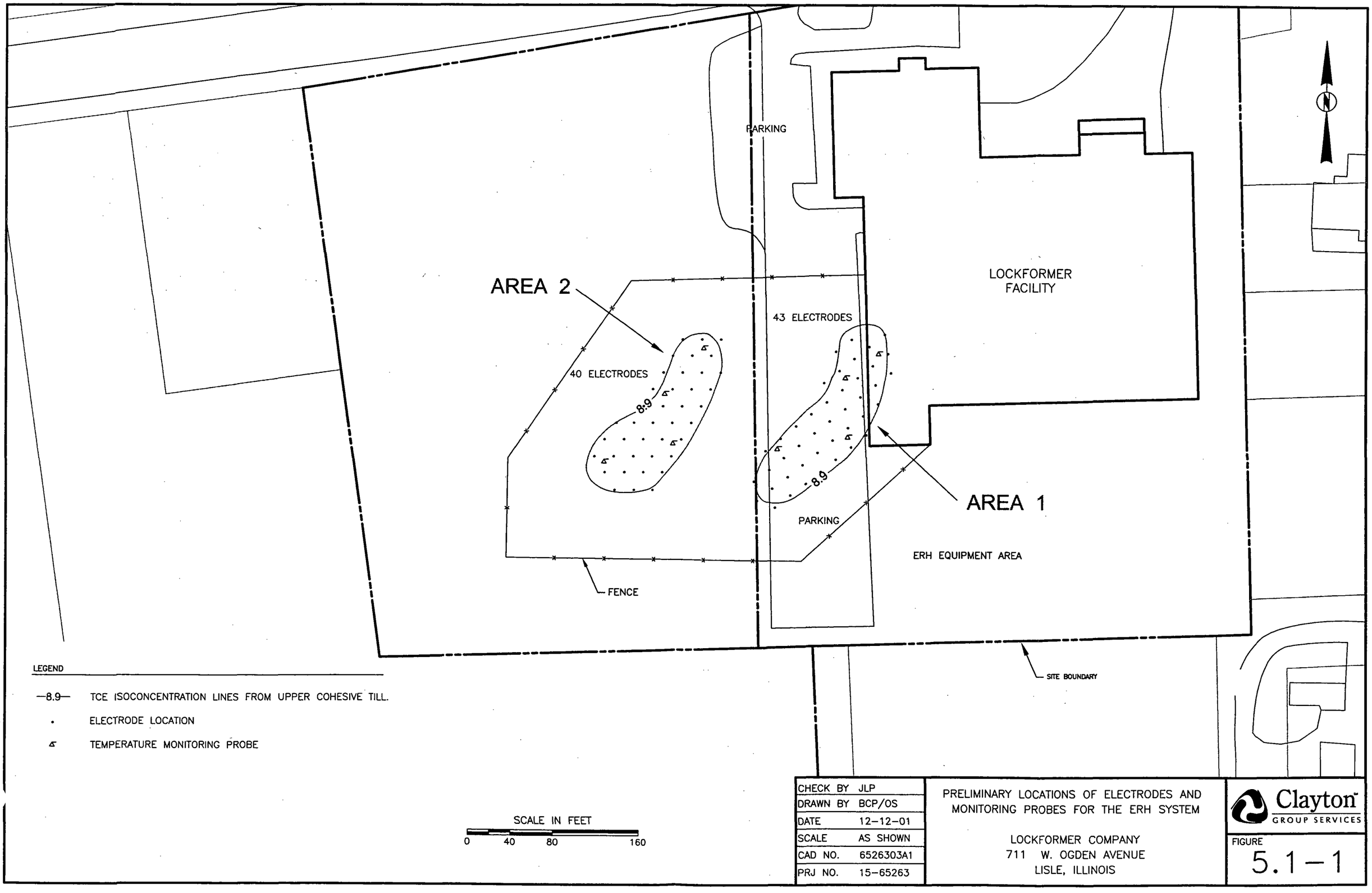
5.5.5 Non-hazardous Miscellaneous Waste

Site remediation will also generate non-hazardous waste such as empty material bags (Sand, Bentonite, and Portland cement), scrap CPVC piping, and miscellaneous debris. This non-hazardous waste will be managed and disposed in accordance with appropriate State and local solid waste requirements.

5.6 REMOVAL OF DEGREASER

The mechanical vapor degreaser unit will be removed from the Lockformer facility. The degreaser unit is in good condition, and will be sold for use at another facility, or sold as scrap. The walls of the concrete vault will be steam cleaned and will eventually house the manifold piping from the SVE unit (Section 5.2.3).

FIGURES



LEGEND

—8.9— TCE ISOCONCENTRATION LINES FROM UPPER COHESIVE TILL.

• ELECTRODE LOCATION

TEMPERATURE MONITORING PROBE

SCALE IN FEET

0 40 80 160

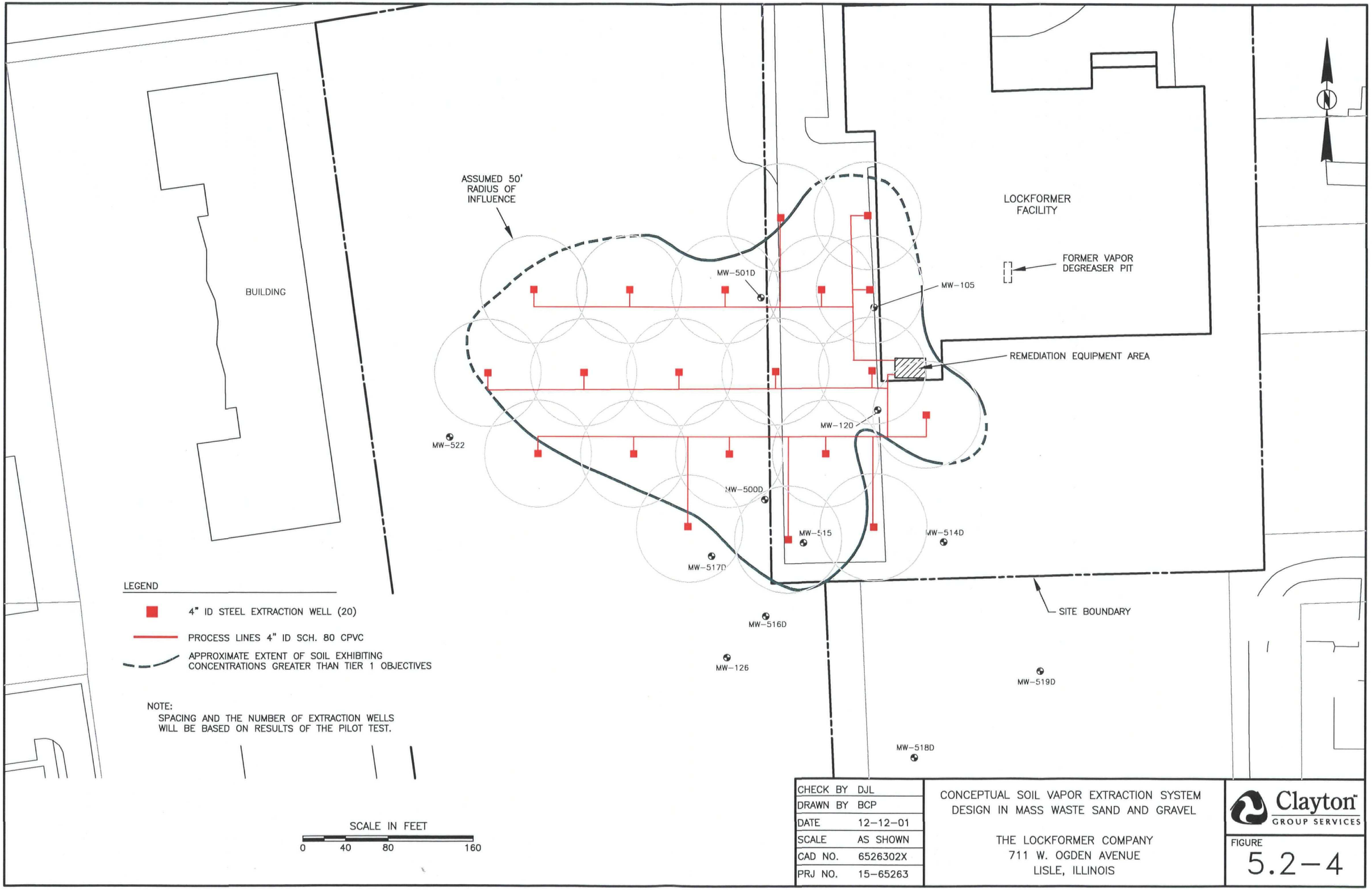
CHECK BY	JLP
DRAWN BY	BCP/OS
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526303A1
PRJ NO.	15-65263

PRELIMINARY LOCATIONS OF ELECTRODES AND MONITORING PROBES FOR THE ERH SYSTEM

LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
5.1-1



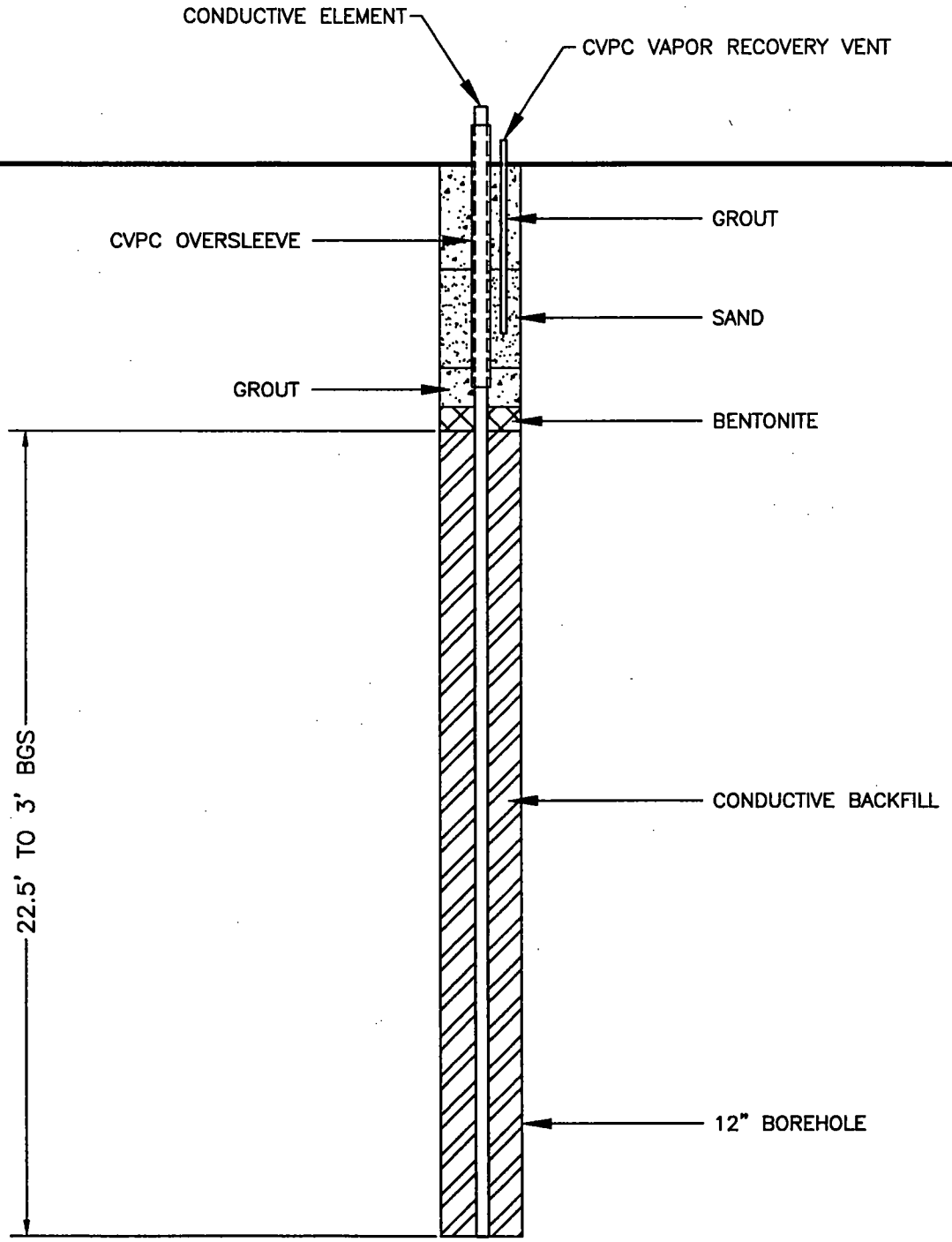
CHECK BY	DJL
DRAWN BY	BCP
DATE	12-12-01
SCALE	AS SHOWN
CAD NO.	6526302X
PRJ NO.	15-65263

CONCEPTUAL SOIL VAPOR EXTRACTION SYSTEM
DESIGN IN MASS WASTE SAND AND GRAVEL

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
5.2-4



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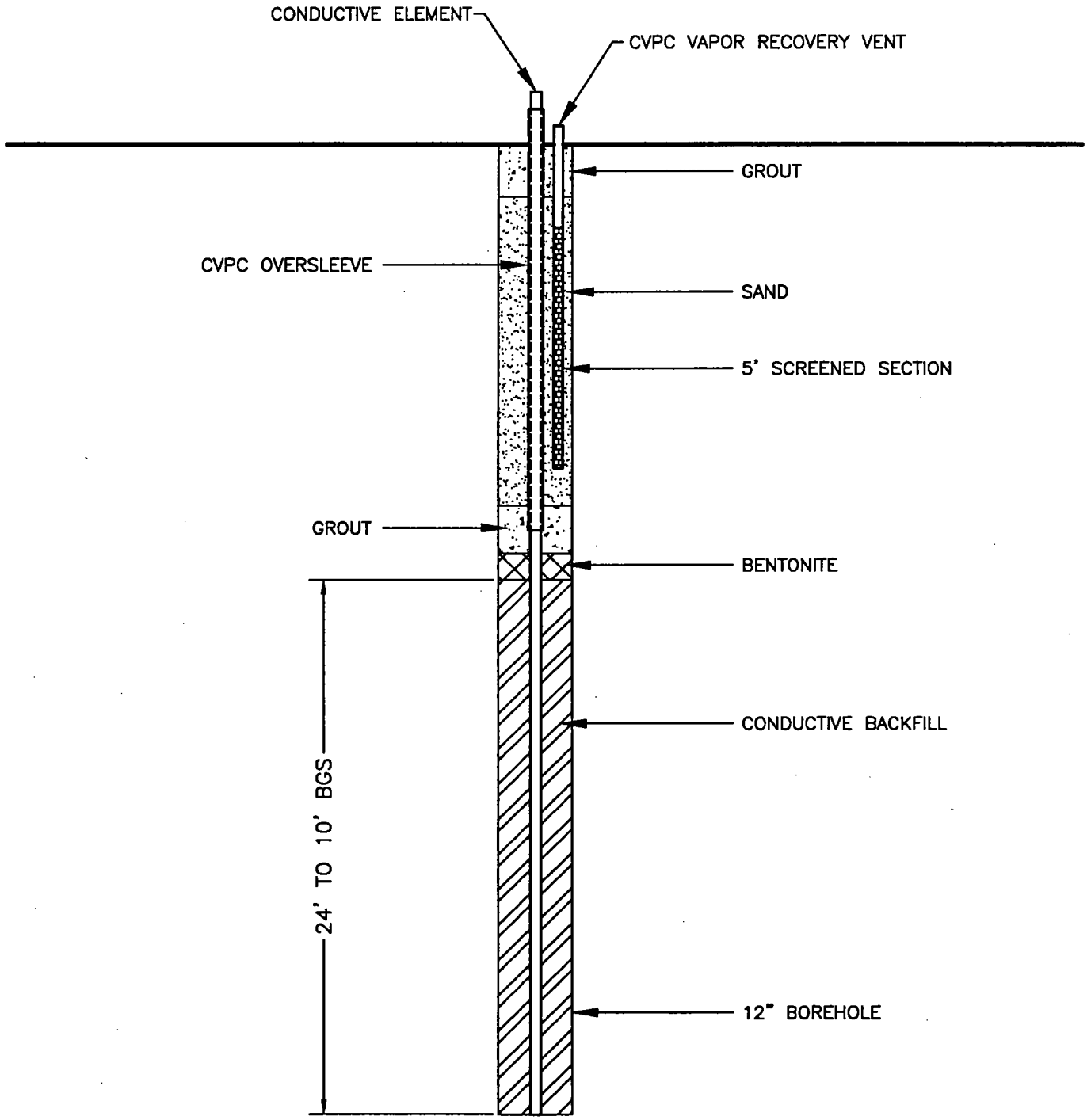
CAD NO.	6526308e
PRJ NO.	15-65263

AREA 1
CONCEPTUAL ELECTRODE

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
5.1-2



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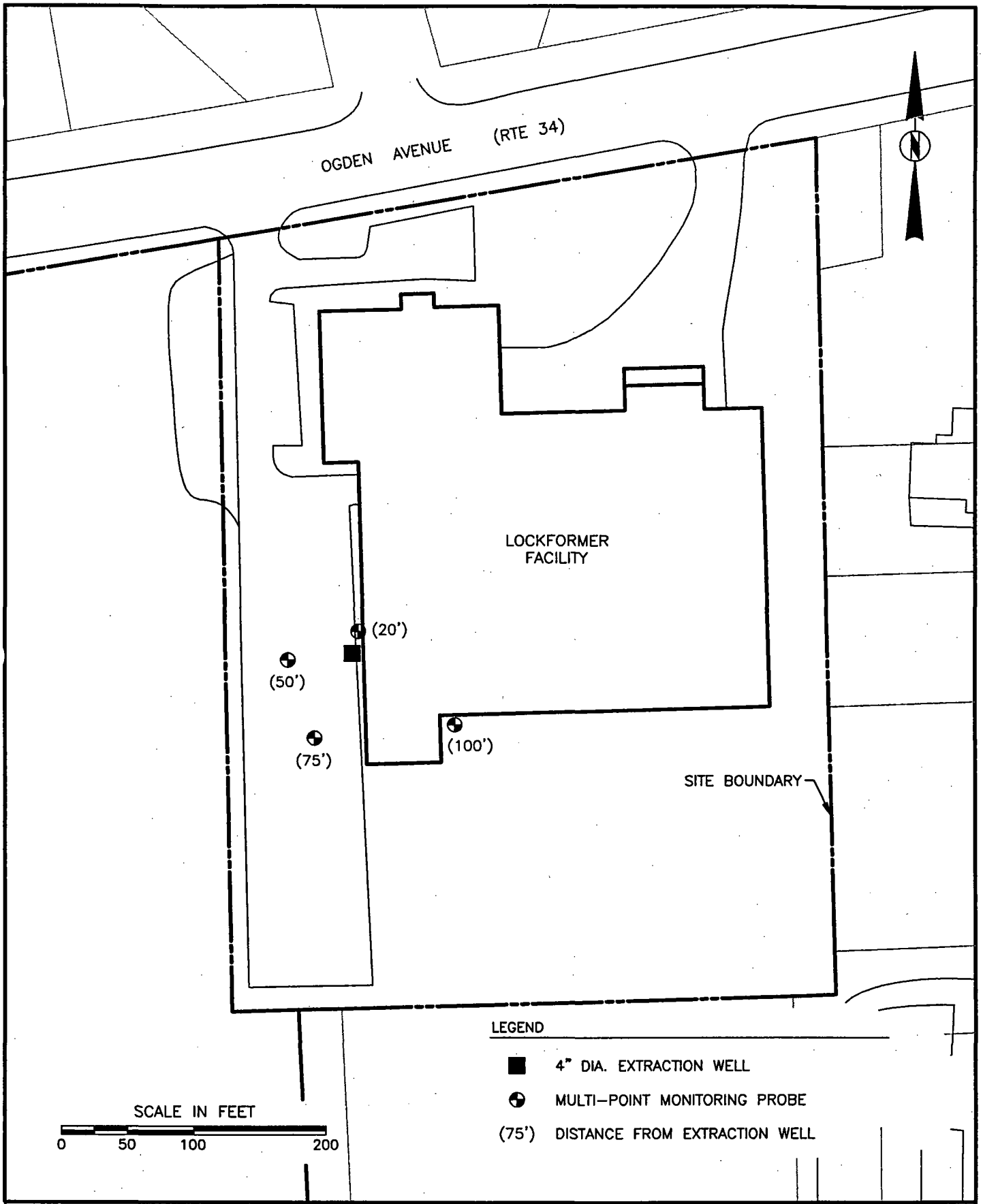
PRJ NO.	15-65263

AREA 2
CONCEPTUAL ELECTRODE

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
5.1-3



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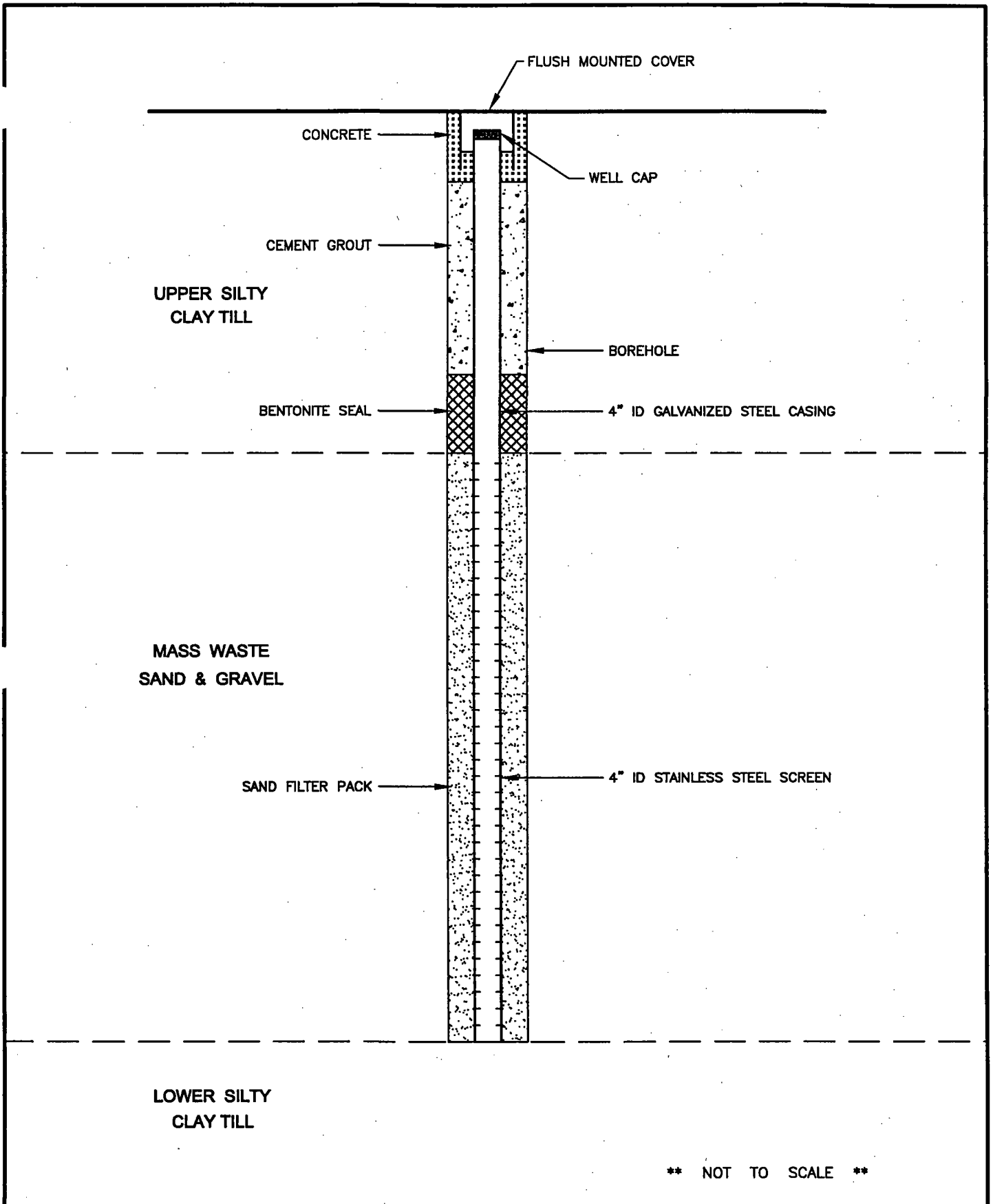
PRJ NO.	15-65263

SVE PILOT TEST LAYOUT

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
5.2-1



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PRJ NO.	15-65263

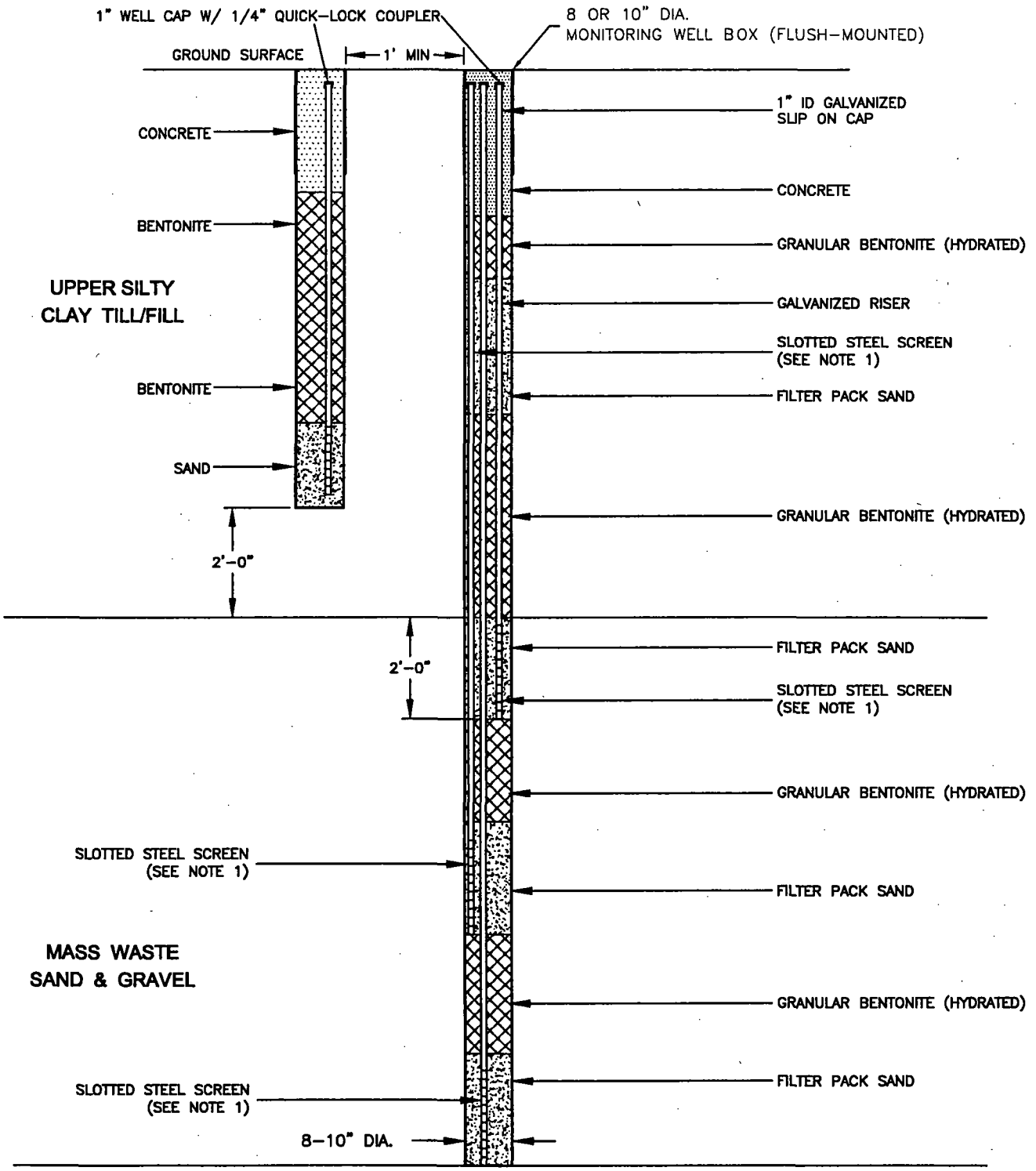
DESIGN FOR SVE PILOT TEST EXTRACTION WELL

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
5.2-2

TYPICAL MULTI-POINT MONITORING PROBE DESIGN



NOTES:

1. PROVIDE 1.0' LONG, 0.010" SLOTTED STEEL SCREEN WITH SAND FILTER PACK.
2. DEPTH OF BOREHOLE AND PLACEMENT OF WELL SCREEN MAY BE MODIFIED BASED ON SUBSURFACE CONDITIONS.

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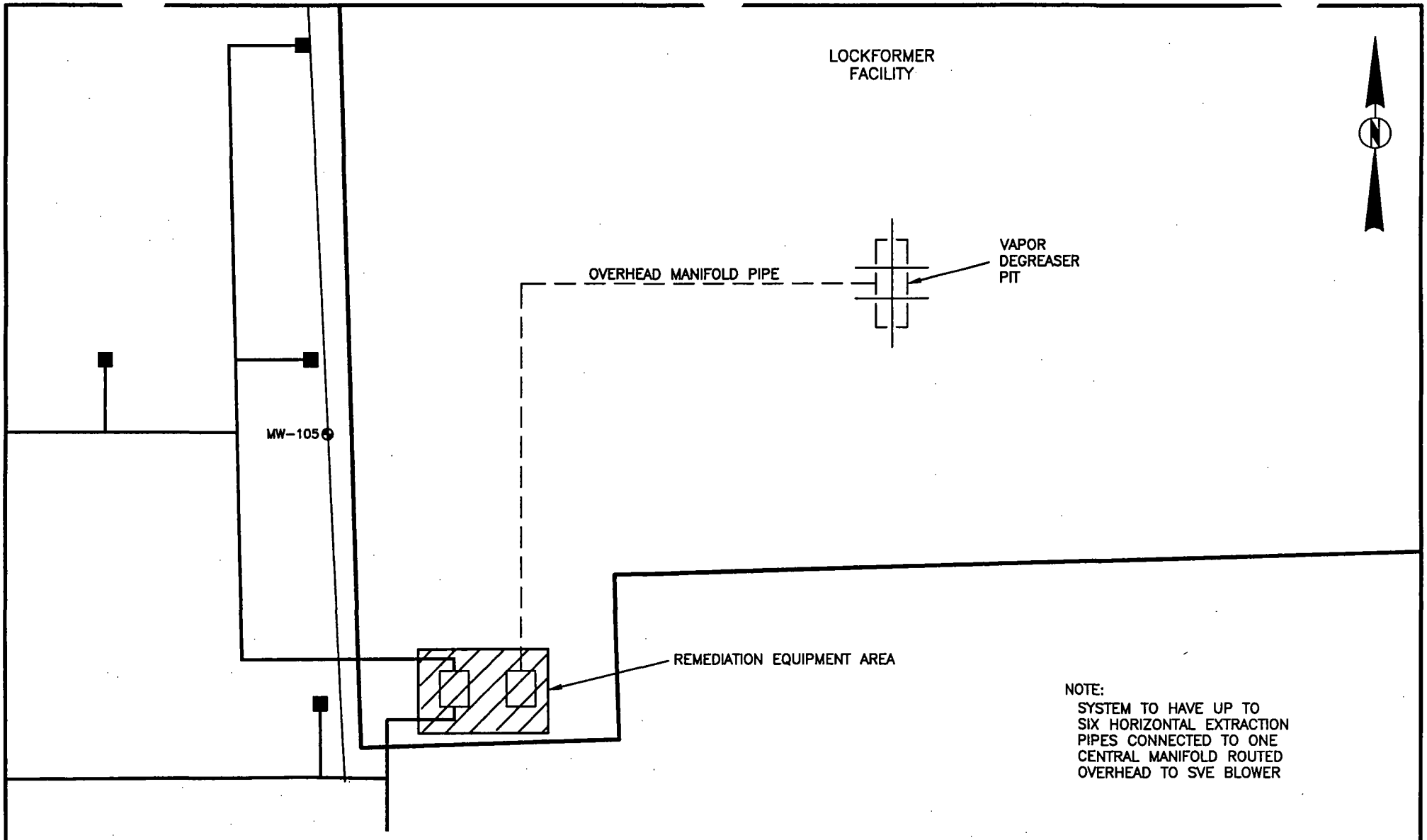
PRJ NO.	15-65263

TYPICAL MULTI-POINT MONITORING PROBE CONSTRUCTION DETAILS

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
5.2-3



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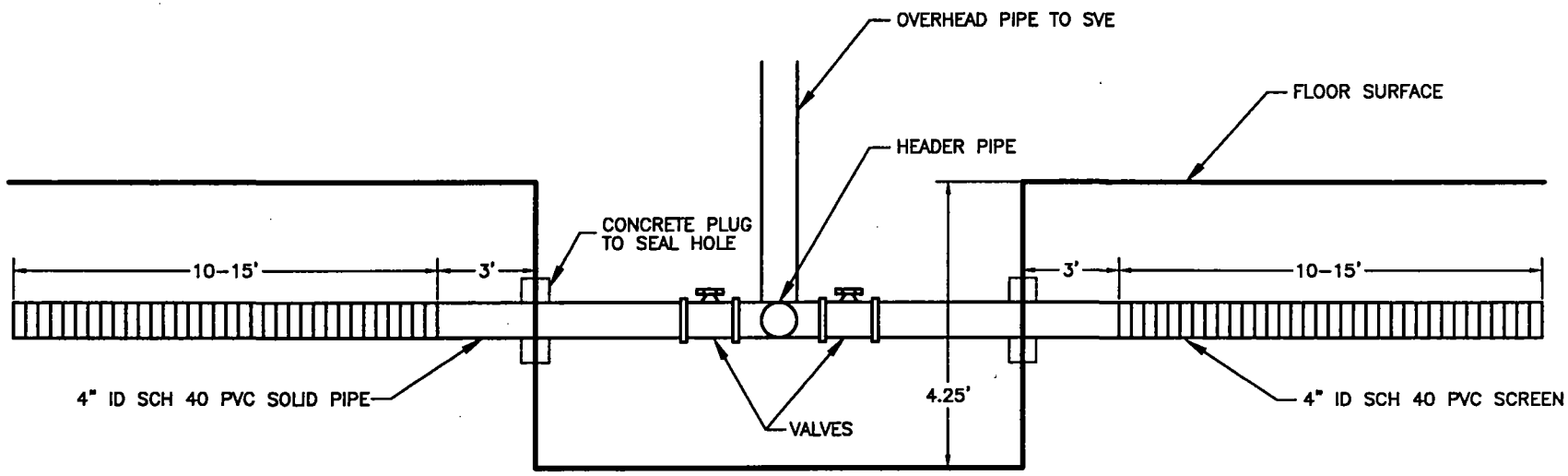
PRJ NO.	15-65263

CONCEPTUAL SOIL VAPOR EXTRACTION SYSTEM
FOR FORMER VAPOR DEGREASER PIT AREA

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
5.2-5



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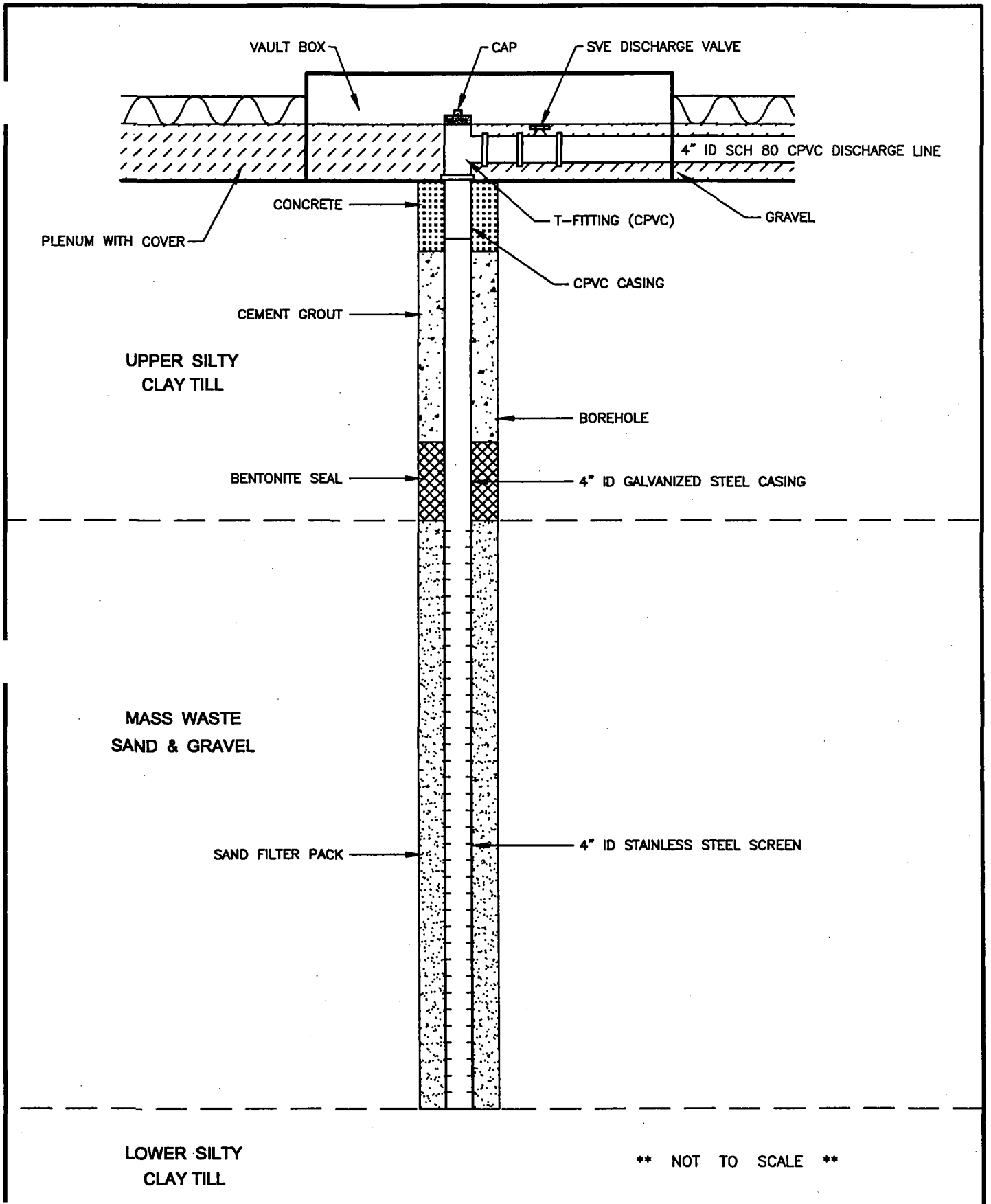
PRJ NO.	15–65263

CONCEPTUAL HORIZONTAL EXTRACTION WELL
DESIGN FOR FORMER VAPOR DEGREASER PIT AREA

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
5.2–6



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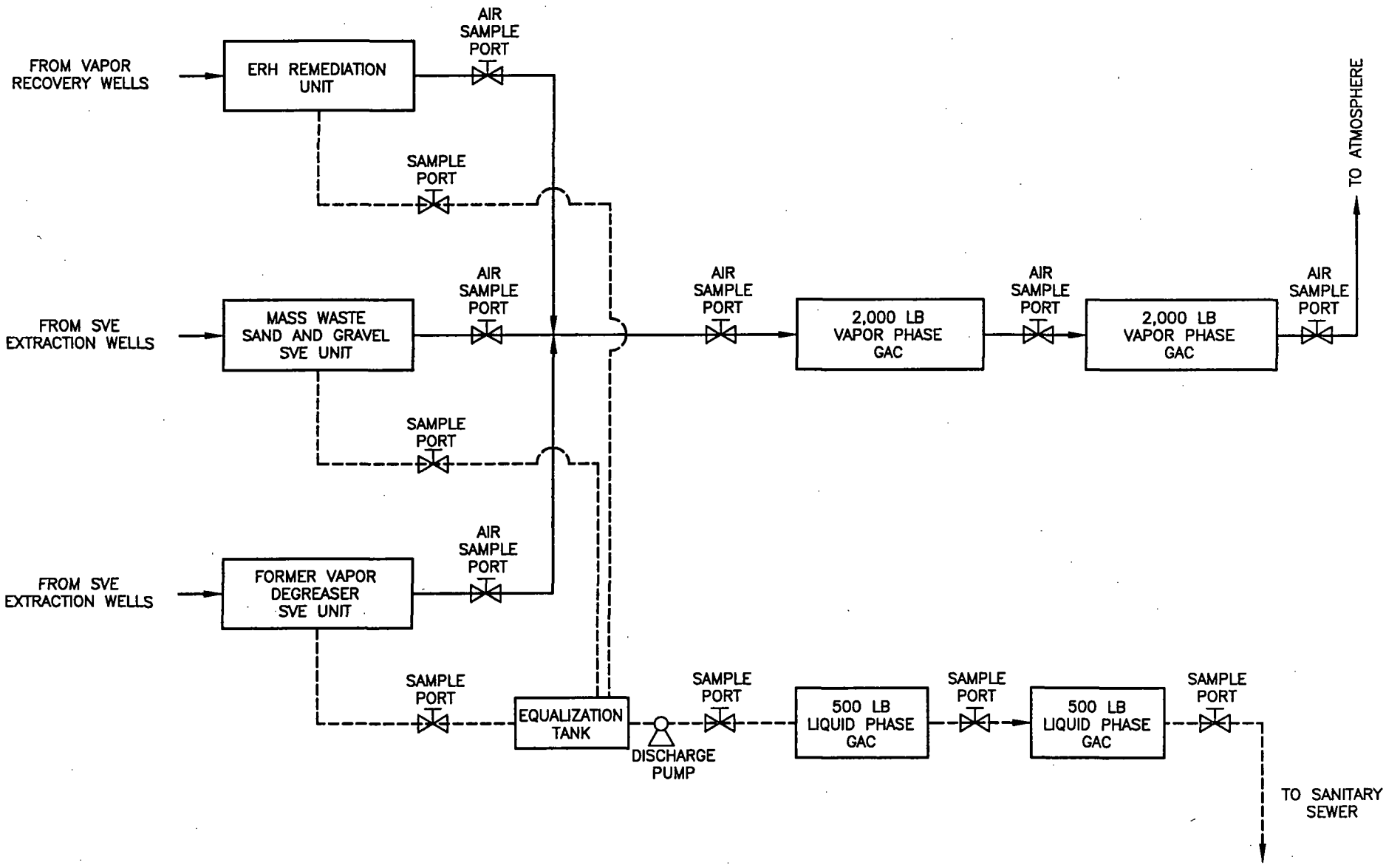
PRJ NO.	15-65263

TYPICAL DESIGN FOR VERTICAL VAPOR EXTRACTION WELL

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
5.2-7



LEGEND

AIR EFFLUENT

WATER/CONDENSATE EFFLUENT

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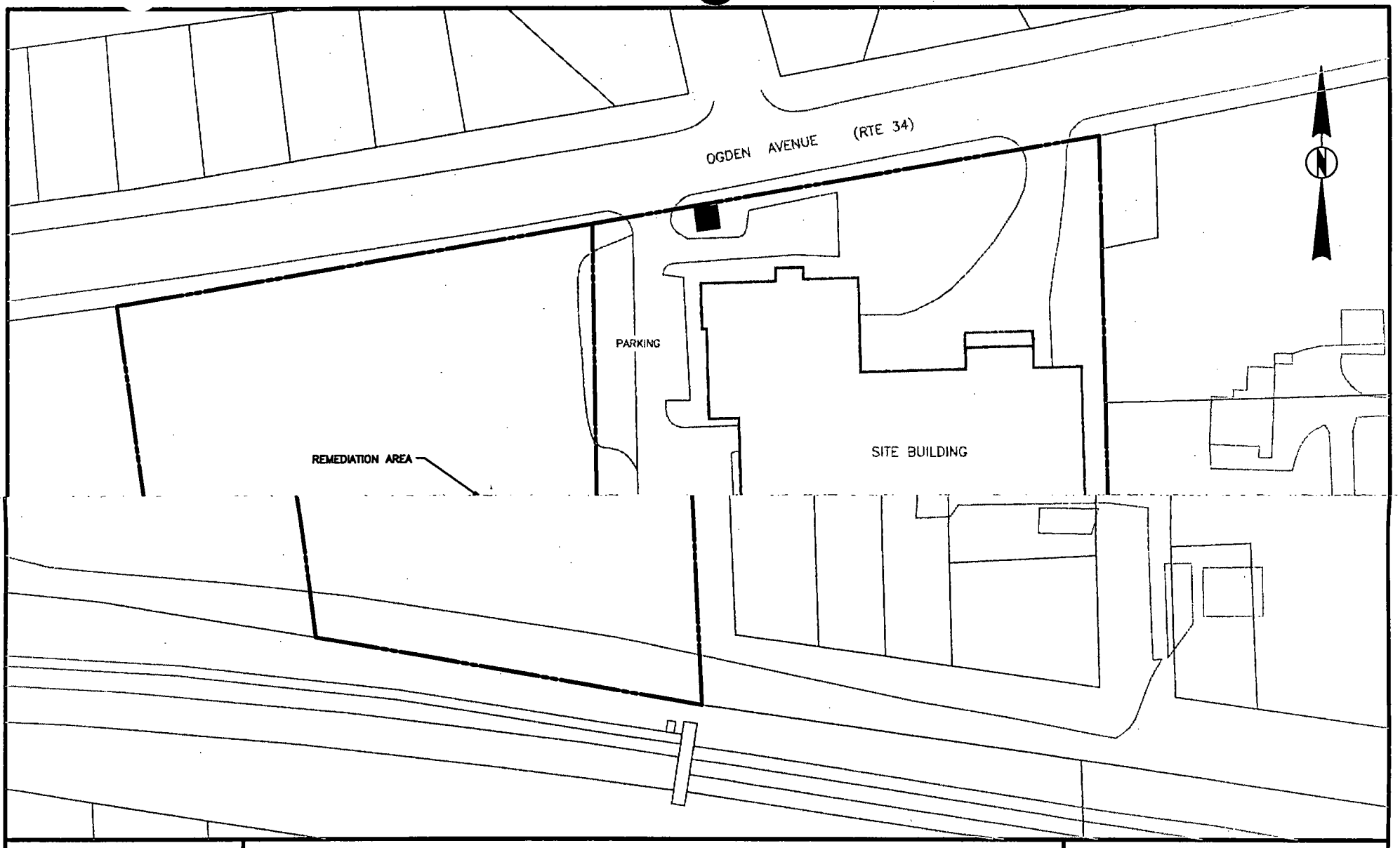
PRJ NO.	15-65263

REMEDIATION PROCESS FLOW DIAGRAM

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE
5.2-8



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PRJ NO.	15-65263

LOCATION OF AIR MONITORING STATIONS

THE LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE 5.4-1

6.0 CONFIRMATION SAMPLING

Once monitoring and analyses of the remedial systems indicates that the ROs in soils have been attained or that the limits of the technology to further reduce contaminant concentrations in the subsurface have been reached, confirmation soil sampling will be performed. This confirmation sampling will be performed by utilizing a grid sampling pattern over both the surficial silty clay glacial till and fill, and the mass waste sand and gravel. The sampling protocols that will be used for the confirmation sampling will be the same as those described in Section 4.1.1 concerning the additional characterization sampling in Area 1.

The grid sampling pattern spacing that will be used during confirmation sampling of the surficial silty clay glacial till and fill will differ from that of the mass waste sand and gravel. The surficial silty clay glacial till and fill will utilize a 25-foot grid sampling program. Since the extent of soil contamination exceeding the ROs in the surficial silty clay glacial till and fill in Areas 1 and 2 is undetermined currently, it is not possible to determine the grid pattern or exact number of sampling locations necessary to complete this grid.

The confirmation grid-sampling pattern for the mass waste sand and gravel will be based on 50-foot centers. These samples will be acquired by hollow-stem auger and split-soon method. Figure 6.0-1 illustrates the anticipated confirmatory sampling grid pattern that will be used for the mass waste sand and gravel.

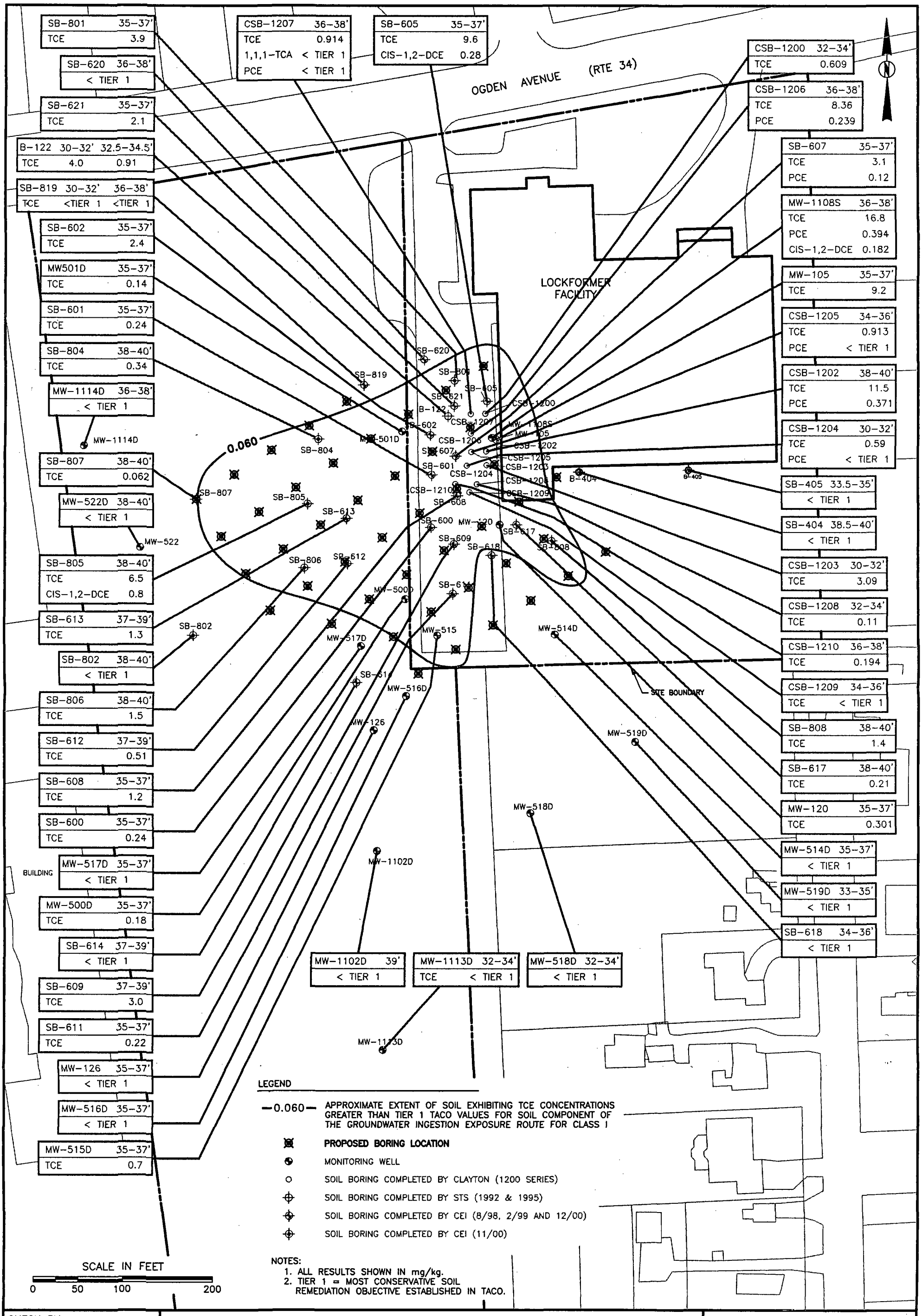
Soil analyses from various locations and depths according to the confirmation sampling schemes will be acquired to properly characterize the entire cleanup area. The soil confirmation data will be statistically analyzed to determine if the concentration of TCE in the affected areas has been reduced to the RO at a 95 percent confidence level. The statistical analysis procedures that will be used are those described in Chapter Nine of

SW-846. If the statistical analyses indicate that the soils in the affected area have met the RO to a 95 percent confidence level, then the cleanup will be deemed complete.

The statistical analysis procedures will be applied to the remedial efforts for the Area 1 and 2 surficial soils separately. As a result, the confirmation sampling, statistical analysis indicating completion, and approval of the Area 1 remediation by USEPA will be necessary prior to remediation of Area 2 being undertaken.

Once the ERH electricity is turned off, the remediation area soils will begin cooling over a four to six month period. During the majority of this time, vapor recovery efforts from the soils in the remediation area will continue. As a result, steam and vapors in the subsurface are continuously withdrawn, and not allowed to condense during this cool down period. ERH treats all soils in the treatment volume, there are no untreated regions from which contaminants could diffuse later and migrate as a vapor. These facts regarding the implementation of ERH make it difficult to conceptualize the potential for any "rebound" effect of soil contaminant concentrations after the ERH system is shut down. In fact, a contaminant rebound effect in soils has not been observed on any ERH project site performed to date.

FIGURES



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PRJ NO.	65263.01

CONFIRMATION SAMPLING PATTERN IN THE MASS WASTE SAND AND GRAVEL

LOCKFORMER COMPANY
711 W. OGDEN AVENUE
LISLE, ILLINOIS

Clayton GROUP SERVICES

FIGURE 6.0-1

7.0 PERMITTING

A State of Illinois Construction Permit (APC 200 Rev 8/99) will be prepared for the combined ERH and SVE system. The permit will include the data and information on the process emission source (APC 220 Rev 1/22/77).

Lockformer does not believe a permit for discharge of water from the ERH and SVE systems will be necessary, since the waters will be treated using activated carbon before discharge to the sanitary sewer and the organic content will be substantially below the existing allowable concentration. However, Lockformer will check with the POTW to assure that they have no special requirements.

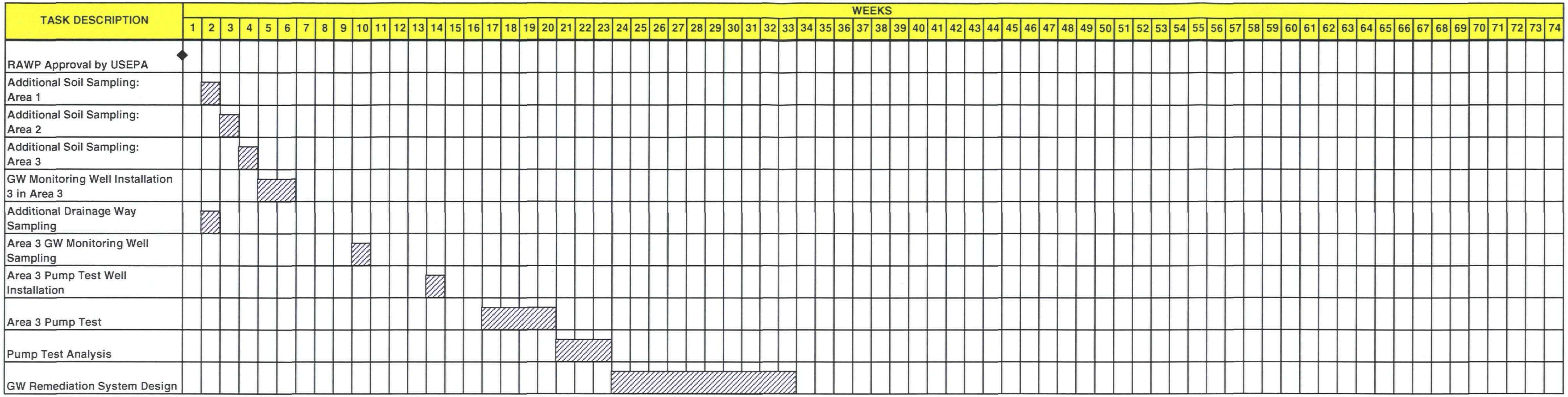
Lockformer will also check with the Village of Lisle to determine if any building or construction permits are required.

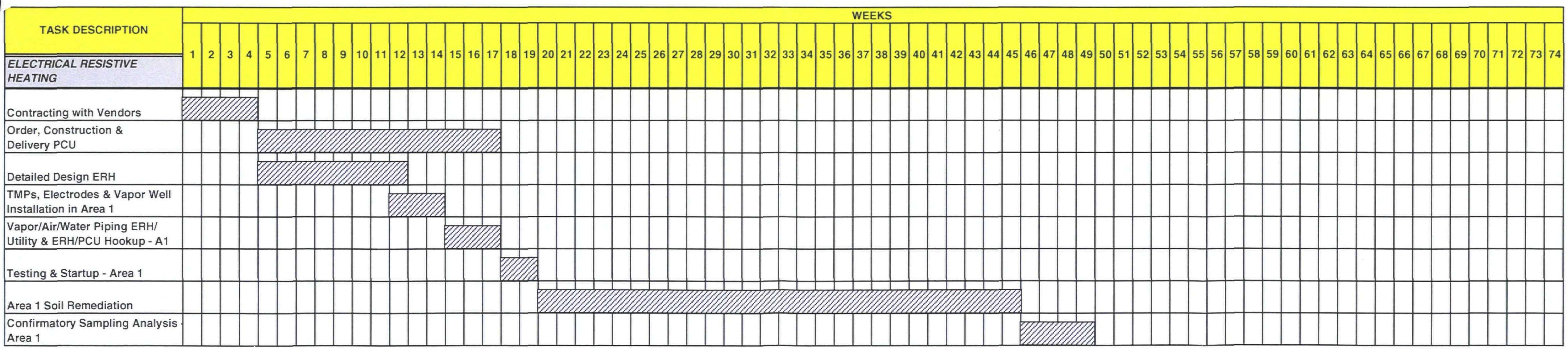
SECTION 8

SCHEDULE

TIMELINE

The Lockformer Company / Lisle, Illinois





TIMELINE

The Lockformer Company / Lisle, Illinois

TASK DESCRIPTION	WEEKS
SVE SYSTEM FOR MASS WASTE SAND AND GRAVEL	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74
Pilot Test	
Design & Approval by EPA	
Installation of Vertical & Horizontal SVE Wells	
Equipment & Process Piping Installation	
Testing & Startup	
Area 1 & 2 SVE Remediation	

Approximately 2 years

TASK DESCRIPTION	WEEKS
AREA 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74
TMPs, Electrodes & Vapor Well Installation	
Vapor/Air/Water Piping & ERH/Utility & ERH/PCU Hookup	
Testing Startup	
Area 2 Soil Remediation	
Confirmatory Sampling & Analysis - Area 2	

SECTION 9

9.0 PROJECT MANAGEMENT

United States Environmental Protection Agency – On-Scene Coordinator

Mr. Steven Faryan will function as the On-Scene Coordinator for the USEPA on this project. All discussions, requests and reporting, including monthly progress reports, technical memorandums, requests for completion approval and final reports will be directed to Mr. Faryan or his designee.

Clayton Project Coordinator

Mr. Ron St. John will serve as the Project Coordinator for Lockformer. Mr. St. John will be responsible for Lockformer's project administration, and the overall project management, coordination and reporting to USEPA.

Lockformer Project Manager

Mr. Arthur Boulard will be the Lockformer Project Manager for this project. He has general oversight and project management responsibilities. He is responsible for completing the project to the satisfaction of the Agency.

Clayton Field Project Manager

Mr. William Elwell will serve as the Clayton Field Project Manager. In his role as Field Project Manager, Mr. Elwell will be responsible for coordination of all investigation and remediation activities. He will be responsible for implementation, scheduling, and integration of the various technical disciplines that will be required during activities in the field.

Clayton Project Quality Control Officer

Dr. Hank Mittelhauser will serve as the Project Quality Control Officer. Dr. Mittelhauser will provide general oversight and guidance to the Clayton Management team. He will review the findings and evaluations of the project.

THERMAL Managers

Mr. Greg Beyke will be the lead Engineer, Jerry Wolf will be the THERMAL Project Manager, and Tom Powell will be the Site Manager for the ERH phase of the project.

First Environmental Laboratories Project Manager

Mr. William Mottashed will serve as the First Environmental Laboratories Project Manager. Mr. Mottashed will be responsible for coordinating laboratory analyses and will provide an overview of final analytical reports.

First Environmental Laboratories QA/QC Officer

Ms. Lorrie Franklin will serve as the First Environmental Laboratories QA/QC Officer. Ms. Franklin will be responsible for overview of laboratory QA/QC procedures, overview of QA/QC documentation, conduct of detailed audits, approval of laboratory corrective actions (if required), technical representation of laboratory QA procedures, and will provide an overview and approval of final analytical reports.